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ABSTRACT

The growing fiscal problems of American cities have drawn new attention to the dual role of the Federal government: on one hand a contributor to current problems; on the other, the main potential source of solutions and financial relief. Federal involvement in urban affairs is far more extensive than is suggested by the handful of explicitly urban Federal programs. The public and private sectors of the urban economy are affected by such diverse Federal policies as grants for social programs and facilities, transfer payments to individuals, tax treatment of housing and business investment, regulation of transportation, establishment of environmental standards, and enforcement of civil rights laws. These policies have major impacts on the fiscal conditions of local governments in urban areas. This report examines the effects of Federal actions on fiscal conditions in the urban public sector. It presents a conceptual analysis of the ways in which Federal actions can influence the fiscal conditions of urban local governments and a review and synthesis of the relevant research and policy literature. Both the Federal policies that affect local finances directly and those that operate indirectly via the private sector are covered. (Author/KR)

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THE URBAN IMPACTS OF FEDERAL POLICIES: VOL. 3, FISCAL CONDITIONS

PREPARED UNDER GRANTS FROM THE CHARLES F. KETTERING FOUNDATION AND THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

R-2114-KF/HEW STEPHEN M. BARRO APRIL 1978

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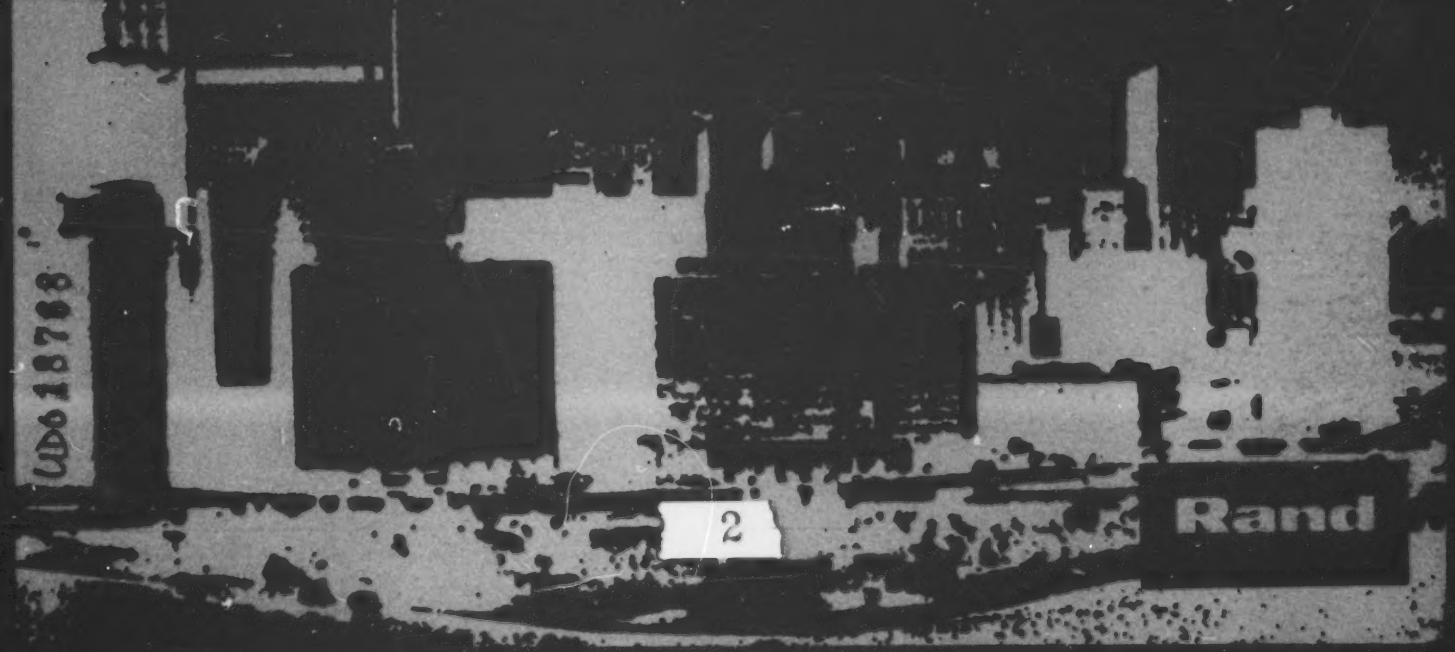

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PREFACE

This is one of a series of reports on a Rand Corporation study of the urban impact of federal policies. The purposes of the study as a whole are: (1) to establish a conceptual framework for assessing the effects of federal actions on urban areas, (2) to synthesize the findings of existing research regarding the effects of federal policies on urban conditions, and (3) to evaluate the adequacy of the existing knowledge as a basis for anticipating the effects of future federal decisions on urban areas.

The organizing principle for this research has been to examine individually three major sectors of the urban economy that are affected by federal actions: the private business sector, the residential sector, and the local public sector. This report presents our findings about the effects of federal policies on fiscal conditions in the local public sector. The findings of our research regarding the residential and private business sectors are presented in two companion reports:

> *The Urban Impacts of Federal Policies: Vol. 2, Economic Development*, by Roger J. Vaughan (R-2028-KF/RC).
>
> *The Urban Impacts of Federal Policies: Vol. 4, Population and Residential Location*, by Roger J. Vaughan and Mary E. Vogel (R-2205-KF/HEW).

The findings of these three reports are summarized and integrated in a fourth report,

> *The Urban Impacts of Federal Policies: Vol. 1, Overview*, by Stephen M. Barro and Roger J. Vaughan (R-2206-KF/HEW).

The intended audience for these three reports includes federal policymakers and their staffs, state and local government officials, and others who are interested in understanding, anticipating, or influencing federal policy decisions that have consequences for urban areas. The three sectoral reports have been conceived of as resource documents that review evidence from the literature. They should also be useful to researchers in urban economics and related fields and to public and private agencies that sponsor research on urban problems. The fourth report in the series, the integrative report, is less technical and detailed than the other documents. It has been prepared to make the results of this study available to a wider audience of public officials and other persons concerned with urban affairs.

The research reported on here and in the other three documents was conducted under a grant from the Charles F. Kettering Foundation with supplementary financial support from funds provided by the Department of Health, Education and Welfare.

SUMMARY

The growing fiscal problems of American cities have drawn new attention to the dual role of the federal government: on one hand a contributor to current problems; on the other, the main potential source of solutions and financial relief. Federal involvement in urban affairs is far more extensive than is suggested by the handful of explicitly urban federal programs. The public and private sectors of the urban economy are affected by such diverse federal policies as grants for social programs and facilities, transfer payments to individuals, tax treatment of housing and business investment, regulation of transportation, establishment of environmental standards, and enforcement of the civil rights laws. This constellation of federal policies has major impacts on the fiscal conditions of local governments in urban areas.

This report, part of a larger study of the urban impacts of federal policies, examines the effects of federal actions on fiscal conditions in the urban public sector. It presents a conceptual analysis of the ways in which federal actions can influence the fiscal conditions of urban local governments and a review and synthesis of the relevant research and policy literature. It covers both the federal policies that affect local finances directly and those that operate indirectly via the private sector. To obtain a complete picture of the latter, however, one must read this report in conjunction with the companion reports on *Urban Economic Development* and *Urban Population and Residential Location*, which examine federal influences on business and household behavior.

URBAN FISCAL PROBLEMS AND FEDERAL POLICY

Despite all that has been written about urban fiscal distress, there is no general agreement either about how the problem should be defined or about what it implies for federal policy. What are unquestionably problems for the affected local jurisdictions and people are not necessarily national problems, and may even represent desirable economic adjustments. Major arguments for federal intervention are that federal policies have been biased against the cities and that urban decline imposes major social costs. However, it has been difficult to take even the first step toward developing a coherent urban policy, which is to agree on what constitutes a fiscal problem and which cities are in trouble.

Types of Fiscal Problems

Three types, or levels, of urban fiscal problems needs to be distinguished: fiscal disadvantage, fiscal decline, and acute fiscal crisis. Although there are insufficient data to support a quantitative assessment, certain generalizations can be offered about the prevalence and severity of each.

Fiscal Disadvantage. A city or urban area is fiscally disadvantaged if it is less able than other comparable units to support given levels of public services. The disadvantage may arise from any or all of the following: a low tax base, a high

concentration of residents who are expensive to serve (e.g., poor people and school children), high service costs, or unusually broad fiscal responsibilities. Increasingly, central cities are becoming disadvantaged relative to their suburbs. At the same time, the fiscal advantages once enjoyed by the urbanized northeastern and midwestern regions are diminishing. The prospects are for further relative declines in the fiscal positions of many northern cities and some entire metropolitan areas.

Fiscal Decline. A city experiences fiscal decline if its budgetary options are less favorable than in an earlier period. *Absolute decline* means that the city must cut back its services, increase the tax burden on its citizens, or do some combination of the two. *Relative decline* means that the city's budgetary choices are expanding less rapidly (or contracting more rapidly) than those of other jurisdictions. The absolute declines that some cities have experienced are partly due to the recession and partly to underlying trends. Insufficient information is available to separate the two components. However, there does seem to be a growing list of older cities with severe urban pathologies, whose economic declines are unlikely to be reversed by a national economic recovery.

Acute Fiscal Crisis. An acute crisis occurs when the tightening of a city's budget constraint is too severe, too sudden, or too long deferred to be adjusted to by normal budgetary mechanisms. The consequences are that existing revenue and expenditure patterns may be disrupted and the city may fail to honor its financial obligations, as was the case in New York. The New York experience has reduced the probability of similar developments elsewhere by drawing the attention of local, state, and federal officials, as well as private financial institutions, to municipal financial practices.

In sum, the main problems for which federal solutions are likely to be sought are (1) continued relative decline, and therefore, increasing fiscal disadvantage of central cities relative to other parts of metropolitan areas, (2) relative fiscal decline of older regions and metropolitan areas, and (3) absolute economic and fiscal declines in some of the more severely impacted older cities.

Present and Potential Federal Roles

There are only a handful of federal programs designed explicitly to accomplish urban policy objectives, and few are aimed specifically at relieving the fiscal strains on urban governments. Nevertheless, urban fiscal conditions are strongly and directly affected by the federal grants-in-aid that support many federal social programs, by federal tax expenditures that subsidize local revenue collections; and by policies that influence the fiscal responsibilities and service obligations of local jurisdictions and the cost of providing local services. In addition, numerous federal policies affect the performance of the private economy in urban areas, which is the primary long-run determinant of the fiscal well-being of the local public sector. Taking into account both direct and indirect effects, most domestic expenditure programs and many regulatory and law enforcement activities of the federal government belong on the list of federal policies that influence local fiscal conditions. However, most of these effects are inadvertent, incidental to the main purposes of the programs, and not consequences of a deliberate federal urban policy.

Alternative Urban Strategies. Assuming that a more coherent federal urban policy will be developed in the future, one can conceive of strategies aimed at

problems of urban jurisdictions, geographical areas, or specific population groups.

The classic jurisdictional problem is that of a declining central city within an otherwise economically sound metropolitan area. The political boundary between the city and its suburbs is likely to be an important contributor to the fiscal disadvantage or decline of the former. Potentially relevant federal actions include changes in aid allocation formulas, structural change policies aimed at reducing metropolitan fragmentation, and selective locational incentives aimed at countering fiscally adverse aspects of the suburbanization process.

The fiscal problems of declining places (metropolitan areas and entire regions) reflect geographical variations in rates of economic growth. To the extent that these variations are due to the locational incentives created by federal policies, proposals for eliminating "anti-urban biases" in those policies are germane. To go futher in implementing a positive urban development goal could involve deliberate introduction of pro-urban biases into federal policies or development of explicit urban economic development programs.

A federal policy aimed at helping the poor and dependent segments of urban populations would not necessarily involve urban aid or urban development efforts. Policies compatible with a "people-oriented" strategy include improvements in transfer payment programs, efforts to enhance the mobility of central city residents, and elimination of incentives for concentration of poor in the older urban centers. These options are compatible with the concept of selective rather than general urban preservation.

Federal Policy Instruments. Both the policies that affect local finances directly and those that impinge initially on the private economy need to be considered in developing an urban strategy. However, there are variations in the degree to which different types of existing or proposed programs could be manipulated to achieve urban objectives. The potentially relevant policy instruments may be classified into the following categories: (1) programs explicitly designed to aid particular local jurisdictions or local economies, and therefore directly targetable on cities (e.g., community development and CETA block grants and public works programs); (2) programs that distribute money geographically to accomplish general social goals but that have funding formulas and other features that could be altered to shift the benefits toward urban areas (e.g., federal grants for transportation and environmental protection); (3) programs aimed at particular segments of the population rather than at geographical areas or jurisdictions, which could be changed to favor urban populations or to provide pro-urban locational incentives (e.g., welfare, other transfer payment programs and education programs); and (4) programs and policies that appear to be nationally uniform, but that nevertheless favor some types of places over others because of the uneven distribution of the affected persons or activities, and which could be modified to favor urban areas (e.g., federal tax policies, including tax expenditures). It may be difficult to change policies that have little apparent urban character for the purpose of aiding cities; yet such changes can have greater consequences for the well-being of the urban public sector than the enactment of explicit programs of urban aid.

THE DETERMINANTS OF URBAN FISCAL CONDITIONS

Despite all the discussion of urban fiscal problems, there is no general consensus

on the method of defining or quantifying the fiscal condition of a city. The approach to measurement presented here is based on an analysis of the various factors that enter into the budget constraint of a local government. This analysis provides the conceptual framework for the subsequent discussion of federal policy impacts on local fiscal conditions.

Fiscal Opportunities and Fiscal Outcomes

The distinction between opportunities and outcomes is critical. *Fiscal opportunities* are the budgetary options available to a local government. The more favorable its opportunities, the more services a jurisdiction can provide at a given rate of local revenue effort. *Fiscal outcomes* are the levels of services and taxes that the jurisdiction chooses from among the options available to it. Variations in fiscal opportunities reflect differences in both revenue sources and demands for local expenditures. The major factors on the revenue side are the size of the local revenue base and the availability of external aid. The main factors on the expenditure side are demand-related characteristics of the local population, local service costs, and the scope of local service responsibility. Other relevant factors include revenue and service spillovers, federal tax subsidies, and inherited and externally imposed costs and obligations. Variations in fiscal outcomes reflect both the differences in fiscal opportunities and differences in preferences among jurisdictions.

Measurement of the Major Fiscal Opportunity Factors

Conceptual and practical problems of varying severity arise in attempting to measure fiscal opportunity factors; however, for each factor at least a crude measurement capability exists now and approaches have been developed for improved measurement in the future. The state of the art may be summarized as follows:

The Local Revenue Base. Data on per capita personal income provide a ready-made approximate measure. Two approaches to improved measurement are: (1) development of a broader income-based measure that allows for other income and wealth components and for revenue spillovers, and (2) construction of fiscal capacity indices by computing weighted sums of individual local tax bases.

External Aid. Data on amounts of external aid are readily available. The basic measurement problems are separating lump-sum and matching components of grants and allowing for the effects of aid constraints. Theoretical methods have been developed for coping with these problems, but implementation would be difficult and costly.

Service "Needs" of the Local Population. Two methods of constructing need indices have been developed and pilot tested. One is based on direct imputation of each category of spending to particular segments of the population; the other requires econometric analysis of the effects of population composition on service demands. The first type of index could readily be developed in preliminary form from existing data.

Service Costs. Methods have been developed for constructing indices of public employee wages using econometric models of wage determination. Cruder wage indices could be constructed from existing data on wage rates in specific public and private occupations. These could be used in combination with price indices for nonlabor inputs to assemble rough indices of local service costs.

Scope of Responsibility. A rough index of service responsibility could be constructed from data on the shares of state-local direct expenditure accounted for by each class of local government within a state. Methods have been proposed, but not yet demonstrated, for constructing a more refined index from information on the specific responsibilities assigned to each type of jurisdiction.

The Fiscal Opportunity Schedule and Indices of Fiscal Condition

The *absolute fiscal opportunity schedule* is a relationship between the rate of fiscal effort exerted by a jurisdiction and the degree to which it can satisfy the demands of its residents for the services that it is responsible for providing. The schedule is constructed by deflating the per capita revenue available at a given rate of effort by indices of service needs, service cost, and scope of responsibility. An intercity comparison of fiscal opportunity schedules would reveal the degree to which each city is fiscally advantaged or disadvantaged.

The *incremental fiscal opportunity schedule* is a relationship between the change in a city's rate of fiscal effort from one year to another and the corresponding change in the ratio of revenue to expenditure needs. By comparing incremental opportunity schedules, it would be possible to determine each city's absolute and relative rates of fiscal improvement or decline.

Cities may rank very differently on the absolute and incremental scales. One city might be relatively advantaged, but declining; another might be disadvantaged, but improving. Differing distributions of aid would result from federal urban assistance programs aimed at these two different types of urban problems.

Various indices of urban fiscal condition can be derived from the absolute and relative opportunity schedules. A fiscal disadvantage index could be constructed by computing the expenditure-to-needs ratio that each city could attain by exerting the average level of revenue effort of all cities in the same category. An index of fiscal decline could be constructed by computing the percentage rate at which a city's expenditure-to-needs ratio would decline (or increase) from one year to the next if its rate of revenue effort were held constant. Such indices would be useful for comparing the severity of problems facing different urban areas and, in the context of a federal urban program, could be used to quantify each city's relative need for federal aid.

FEDERAL POLICIES THAT AFFECT URBAN FISCAL OPPORTUNITIES DIRECTLY

Federal programs and policies influence all the factors that enter into the local fiscal opportunity schedule. The policies that directly affect the revenues or expenditures of local government include: (1) federal grant programs, (2) federal tax expenditures, (3) federal actions that affect local fiscal responsibilities, and (4) federal actions that impose expenditure obligations on local jurisdictions.

Federal Grant Programs

Federal aid to state and local governments is a principal component and determinant of the availability of intergovernmental revenue to the local sector. Federal

aid provides about one-fourth of the revenue of the state-local sector and federal and state grants combined provide over 42 percent of the revenue of local jurisdictions. The larger cities, in particular, have become heavily and increasingly dependent on federal aid. To assess the impact of these federal grants, one must consider not only the federal aid dollars received by each locality, but also the responses of state governments to federal grants, the obligations that states and localities incur when they accept federal aid, the treatment of urban areas under federal and state aid distribution formulas, and the long-run locational effects of the grant programs.

The Role of the States. Most external aid to local governments either derives from or passes through the states, and state responses to federal grant programs either reinforce or offset their effects. Four aspects of state behavior are potentially important. First, the exercise of state discretion in distributing and controlling "passed through" federal funds may determine the impact of federal aid. Second, state decisions about participation in joint federal-state funded programs determine the level of support for such key programs as Aid for Dependent Children (AFDC) and Medicaid. Third, states may respond to federal grants for state-level activities in such a way that localities benefit, even though they do not receive the federal funds directly. And fourth, states may respond to direct federal grants to cities by providing less state funding than would otherwise have been available, thereby offsetting the federal assistance. As yet, there are no empirical studies of state aid-granting behavior that yield estimates of the sizes of these effects.

The Form of Aid. The effect of a given volume of external aid on local fiscal opportunities depends on several aspects of the form in which aid is provided—whether it consists of categorical grants, block grants, or unrestricted aid; lump-sum or matching grants; or project or formula grants. These different forms impose different expenditure obligations on the local aid recipient. To the extent that categorical earmarking is effective (and enforced), grantees must spend more for the aided functions than they would have otherwise. The same is true where a matching provision draws additional local funds into a program. Empirical research on the fiscal impacts of grants indicates that matching grants and grants with detailed categorical earmarking are more effective than less restrictive forms of aid in generating extra spending for the federally designated activities. From the local standpoint, however, this means that the more circumscribed grants provide less fiscal assistance than do grants that can be expended according to local preferences. However, the finding that even categorical aid tends to be substituted, in part, for local revenue indicates that localities are usually able to extract some general benefits from even the narrower forms of federal grants.

Aid Distribution. Fiscal conditions in central cities relative to the suburbs and in urbanized relative to less urbanized regions depend on how grant funds are distributed among states and localities. The critical features of aid distribution systems are the "need" factors and other variables used in allocation formulas, the mathematical structures of the formulas themselves, and the rules governing eligibility for different types of aid. A major determinant of the treatment of urban areas under many federal aid programs is the specificity of the allocation criteria. Cities and urban regions tend to do worse when broad criteria, such as population and per capita income, are used than when more specific measures of service needs or concentrations of target populations determine the allocation of funds. Urban areas also tend to benefit when local revenue effort is taken into account and when

grant amounts are adjusted to reflect geographical cost differentials. Certain additional features of grant distribution mechanisms are important in connection with particular types of aid: In the welfare-social sevices cluster of grant programs, the major issues include definitions of target populations, treatment of cost of living variations, the amount of discretion allowed to states to determine participant eligibility and to set benefit levels, and the presence of formula constraints, such as aid floors and ceilings and "hold harmless" provisions. In the capital construction grant programs, the key issues include the size thresholds of jurisdictional eligibility, the specificity of need factors, the choice of formula grant or project grant mechanisms, and provisions for local matching of construction costs. There are few conceptual obstacles to analyzing the short-run distributional implications of existing and proposed grant programs, but insufficient empirical work has been done to provide information on how more and less urbanized places are treated by particular features of aid distribution formulas.

Locational Effects of Grant Programs. Some of the facilities and service systems financed by federal grants, including the federally aided highways and water and sewer facilities and the federal-state welfare system, have created incentives for suburbanization and southward migration of both people and business firms. In some instances, the negative, long-run locational effects of federal aid probably outwiegh their positive short-run contributions to city budgets. Too little is known about locational incentives to permit quantification, but more attention should be given to the possibility of adverse incentives in developing future proposals for financial aid to cities.

Federal Tax Expenditures

The federal tax expenditures that arise from the deductibility of state and local taxes from federally taxable income and from the tax exemption of municipal bond interest total more than $18 billion per year, or 26 percent of the volume of overt grants to state and local governments. These tax provisions subsidize states and localities by permitting them to collect revenue without imposing the full cost of that revenue on local taxpayers. The effect is similar to that of an open-ended matching grant to the state and local sector. However, two features of the tax expenditure approach raise doubts about its desirability as a form of intergovernmental aid: (1) only a fraction of the federal tax expenditure translates into additional state or local revenue (the remainder provides benefits to individual federal taxpayers); and (2) the distribution of the tax expenditures is sharply skewed toward high-income taxpayers, and the benefits accrue to the jurisdictions and regions in which they live.

Federal Policies that Affect Local Fiscal Responsibilities

There are three methods by which the federal government could relieve local (or state) governments of some of their fiscal responsibilities: direct federal assumption of additional functions, federal inducements to states to assume local responsibilities, and federal incentives for changes in local governmental structure.

Direct Federal Assumption. The most often discussed proposal in this category is federalization of welfare. Such action would have provided only about $2 billion in direct relief to local jurisdictions in 1975, but there is a potential for more

substantial benefits if state governments pass on some of their savings to the local sector. Most local outlays for welfare programs are concentrated in a few large cities and urban counties. However, politically realistic welfare reform proposals, under which the federal government would pay the costs of a nationally uniform base program, are likely to distribute large amounts of new aid to states that currently pay low benefits (primarily southern states), while relieving the high paying urbanized states of only a fraction of their current costs.

A possibility that has received little attention is that development of a national system of health care financing could provide substantial fiscal relief to state and local governments. It is difficult to assess either the potential magnitude or the distribution of the local fiscal relief that could result from federalization of health care costs because of uncertainties about both the characteristics of a federal plan and the fiscal responses of state governments.

Federally Induced State Assumption. By inserting appropriate provisions into its grant programs, the federal government could create incentives for states to assume financial responsibilities now assigned to localities. The principal area in which this has been suggested is public elementary and secondary education. The amount of money expended for public schools is so large that a shift of 10 percent of the local school finance burden to the states would provide more direct relief to the local public sector than would federal assumption of the full costs of welfare. Although state assumption of a greater share of education costs would benefit independent local school districts initially (in most states), there is evidence that the benefits would spill over to cities and other general-purpose local governments.

In the absence of full-scale welfare reform, federal inducements to states to relieve cities and counties of welfare costs would also be relevant. However, the potential for local fiscal relief is limited and concentrated in a few major urban areas.

Federal Incentives for Changes in Government Structure. The political and fiscal fragmentation of metropolitan areas is an important source of the fiscal difficulties of some central cities. The federal government could aid those cities by creating incentives for metropolitan tax base sharing or for shifts of functions from municipalities to overlying county governments or general-purpose or special-purpose metropolitan authorities. A variety of federal grant programs could be used as the vehicles for such incentives.

FEDERALLY IMPOSED SERVICE OBLIGATIONS AND COSTS

There are several areas in which federal legislation or regulation has imposed spending obligations on local (or state) governments or raised the cost of local public services. Notable examples are in environmental protection, where federal aid for construction of pollution control facilities pays only part of the cost of water quality standards, and treatment of the handicapped, where Congress and the courts have established rights to service without providing aid to defray the increased costs.

Examples of federal action that have direct effects on local service costs include regulation of energy prices and the requirement, under the Davis-Bacon Act, that "prevailing wages" be paid on federally aided construction projects. One proposal that could have much larger long-run effects on costs is that Congress should

establish a national framework for collective bargaining in the state and local government sector. However, the Supreme Court's decision in *National League of Cities* v. *Usery* has delayed further efforts in that direction.

FEDERAL POLICIES THAT AFFECT URBAN FISCAL OPPORTUNITIES INDIRECTLY VIA THE PRIVATE SECTOR

Many federal policies influence population, housing, and residential location patterns and the structure of private economic activity in urban areas. Indirectly, these policies influence the urban revenue base, the demand for local public services in urban areas, and the level of service costs.

Effects of Federal Policies on the Revenue Base

Local governments raise revenue primarily from levies on residential and business property but also by taxing payrolls, income, sales, and other economic flows. The different components of the urban revenue base are interdependent. In particular, any policy that influences the level of income in a community is likely to have a strong influence on local revenue-raising ability because of the linkage of income to the other taxable magnitudes.

The federal government can affect the local revenue base by influencing either residential or business location decisions. Quantification of the federal impact involves two tasks: (1) determination of the effects of federal actions on economic activity and population, and (2) translation of the economic or demographic changes into changes in tax base components. The first task is extremely complex and is the subject of a large body of research (reviewed in the *Economic Development* and *Population and Residential Location* reports. The second task is more straightforward, but the data needed to translate economic and demographic characteristics of communities into "tax base equivalents" have not been assembled in usable form.

The Residential Tax Base. Federal actions can affect the residential tax base either by changing the economic circumstances of the existing urban population or by stimulating movement into and out of urban areas. Among the policies that have the first effect are transfer payment programs tax policies, job creation programs, and general economic policies that affect income and employment. Although most of these are nominally uniform national policies, they have differential effects on urban areas because of the uneven distribution of the affected target groups. The policies that induce population changes are those that create selective locational incentives—e.g., highway and other transportation programs, subsidies for housing, aid for local infrastructure investment, the federal welfare system, and enforcement of housing and school desegration laws. By stimulating middle-class outmigration and perhaps encouraging the concentration of the poor in northern cities, those policies have tended to reduce the relative per capita tax base of urban areas. Some data needed to translate demographic shifts into changes in the residential tax base could be extracted from studies of housing consumption. However, much work would be needed to develop consistent estimates of the effects of given changes in household characteristics on the per capita tax base of different areas.

The Business Tax Base. Federal actions can affect the business components of the local tax base (property, payrolls, and sales) by altering the relative attractiveness to private firms of urban, suburban, and nonmetropolitan locations and of different regions of the country. There is evidence that the federal roles in such areas as highway and rail transportation, provision of local public infrastructure, regulation of the labor market, and tax treatment of investments has contributed both to centrifugal tendencies within metropolitan areas and to the shift of economic activity to the "sunbelt" regions of the Southeast and Southwest. It has proven extremely difficult, however, to isolate the effects of individual federal policies, to disentangle the federal influence from the influence of external technological and economic forces, and to clarify the interaction between business and population shifts. There are wide variations among sectors of industry in the amounts of taxable property and payroll represented by given volumes of output or value-added. The data analysis needed to quantify the tax base impact of given changes in the level and structure of business activity has not been carried out.

Effects of Federal Policies on the Demand for Local Public Services

The level of household demand for local public services depends on the size and composition of the local population. Therefore, service demand can be influenced by all the factors that were cited above as influences on the redidential tax base. Major demand-related population variables include the ratio of school children to population, the incidence of poverty, the age structure, and various measures of dependency. It has been difficult to obtain reliable measures of the contribution of each variable to service demand because many demand factors are correlated with measures of local fiscal capacity.

When considering the implications of demographic change, it is important to focus on the *net* fiscal effects of changes on the revenue and expenditure sides of local budgets. The two effects may be either offsetting (e.g., when an upper-income household with school children moves out of the city) or mutually reinforcing (e.g., when a welfare-eligible, nontaxpaying family moves in). Insufficient information is available on the relationships between household characteristics and expenditure and revenue variables to compute the net fiscal dividend or deficit that, conceptually, is associated with each type of household. Two additional complications are that the net fiscal effect of a given population change may vary among places, depending on the mix of revenue sources used and the mix of services offered; and that a given population change may have effects of different sign on different jurisdictions serving the same area, (e.g., a positive effect on the finances of the school district but a negative effect on the finances of the municipal government.)

Business firms consume a small portion of the services provided by local governments in general but a larger part of the services provided by municipaliies. Little information exists on either the service consumption or the net fiscal dividend or deficit associated with different sectors of industry.

The Federal Influence on Local Service Costs

The federal government exerts an important influence on public sector costs by affecting costs in the private sector. Federal macroeconomic policies determine the general rate of inflation, to which the local public sector must respond. The federal

government affects private sector wages through a number of regulatory policies, some of which contribute to interregional wage differentials. The wage determinants literature implies that any federal influence on wages or union activity in the private sector is likely to be reflected in public sector wage levels and in the strength of public sector unions in the same areas.

Federal policies also affect some nonwage costs facing the local public sector, notably the cost of construction and the interest rate facing local borrowers. Federal R&D programs affect local government productivity, and thereby influence the cost per unit of output of local services.

LOCAL FISCAL RESPONSES TO FEDERAL POLICIES

Knowledge of the effects of federal actions on the fiscal options available to a locality does not yield information on how the locality will respond. The fiscal response issue is addressed in the body of theoretical and empirical reseach known as the expenditure determinants literature. These studies relate local (and state) spending and taxes to such independent variables as the amount and form of aid, the per capita income and tax base of a jurisdiction, demographic variables, and the price of public services.

The expenditure determinants literature, which evolved out of relatively crude attempts to explain variations in state and local spending, has become increasingly more refined. Recent empirical work rests on detailed theoretical models of constrained maximization by state and local governments. Estimates based on pooled time-series, cross-section data have supplanted earlier estimates based on single-year cross-sections. Nevertheless, there are gaps in methodology and coverage that limit the usefulness of determinants models for analyzing the urban effects of federal policy.

Effects of Grants on Local Spending and Taxes

The central question addressed by the determinants literature is how grants of different types affect spending and revenue of the grantees. Findings on this issue have been obtained from studies of the fiscal behavior of the combined state-local sector, municipal and county governments, and local public school districts. Although there are disparities among the quantitative findings of different studies, there is general agreement about the following propositions:

1. A large fraction of unrestricted lump-sum aid (such as General Revenue Sharing) does not result in increased spending, but substitutes for local revenue.
2. Open-ended matching grants (such as federal grants for AFDC and Medicaid) generate more spending for the aided function than lump-sum grants and may actually stimulate increased state and local spending from own sources.
3. Categorical earmarking of grant funds increases the additivity of aid to local spending, but to a degree that depends on both local circumstances and program characteristics.

4. Categorical funds tend to "spill over" from the aided function to other functions and from the aided jurisdiction to geographically overlapping units of local government.
5. The additional spending generated by any type of grant to local governments is large compared with the spending that would be generated by an equal amount of aid to the local citizens (e.g., in the form of tax reductions).

These findings provide a basis for general statements about the likely effects of changes in federal aid programs on the local sector. However, the ability to make more precise statements about the urban impacts of grant programs is limited by several gaps in existing knowledge: First, there are few reliable estimates of the expenditure impacts of specific grant programs, especially the categorical programs that constitute the bulk of federal aid. Second, there are no consistent estimates of local responses to the price incentives provided by matching grants. Third, little work has been done on differential responses to grants by larger and smaller or more urban and less urban local jurisdictions or by local governments in more and less favorable fiscal positions. Fourth, not much is known about the effects of federal grants that flow initially to the states because of the lack of research on fiscal responses of state governments. In sum, no general capability exists to predict the effects of specific federal aid changes on the absolute or relative levels of urban expenditures and taxes.

Effects of Changes in Income, Tax Base, and Demographic Variables

The expenditure determinants studies provide strong evidence that local spending responds positively to per capita income. However, these studies do not yield separate estimates of the demand effect (reduced "needs" for services) and the supply effect (greater fiscal capacity) of increasing income. There have been few studies of the fiscal responses of general-purpose local governments to changes in taxable property or in other components of the local revenue base, although studies of school districts demonstrate the strong positive effect on spending of increases in local property values.

Many expenditure determinants models yield estimates of the effects of demographic variables on spending, but few models are capable of differentiating between the demand-side and supply-side effects of demographic change. Therefore, the results must be interpreted as estimates of net fiscal effects. The most firmly established demographic effect is the positive value of the pupil-population ratio on per capita spending for schools (and the negative effect of the same variable on outlay per pupil). The effect of the incidence of poverty has been much more difficult to establish, probably because poverty rates are strongly correlated with per capita income and other measures of local fiscal capacity. There is scattered empirical evidence for the positive effect on spending of various measures of dependency. There is also considerable evidence that population density and the degree of urbanization (of states) affect levels of spending, but it is not clear whether these findings reflect cost or demand variations.

Local Responses to Price Changes

The federal policies that alter the effective price of services facing local jurisdic-

tions include matching grants, revenue subsidies provided by means of tax deductions, and polices that affect public employee wages and other resource prices. Only a few of the recent determinants studies have treated price variables in a theoretically acceptable manner. Thus far, the empirical results have been erratic: Estimates of price responses have ranged from highly elastic to inelastic for the same local government function. The state of the art in this area is not yet well developed, and considerable work willl have to be done to produce useful estimates.

Feedback Effects of Changes in Spending and Taxes

The combinations of services and tax rates offered by different jurisdictions are among the factors that influence residential and business location decisions. Consequently, any federal policy that induces changes in spending and taxes is likely in the long run to affect the tax base and the level of service demand in each area, and thereby to exert a second-order effect on local fiscal behavior. There are some inconsistencies in empirical findings about the locational impacts of expenditure and tax differences, and both the magnitude and timing of the feedback effect on local fiscal conditions are uncertain.

PRIORITY AREAS FOR FURTHER RESEARCH

On the basis of the gaps in knowledge documented in this report, the following are some major areas in which more work is needed to develop capabilities for assessing fiscal impacts of federal programs:

Measurement and Projection of Fiscal Conditions

Useful research in this area would include efforts to construct comprehensive indices of the fiscal condition of cities and urban areas; efforts to improve the state of the art in measuring service needs, costs, and responsibilities; and development of methods for projecting and simulating future fiscal developments.

Research on the Intergovernmental Grant System

Research to eliminate gaps in our current knowledge of the fiscal effects of intergovernmental aid includes analysis of the composition of intergovernmental grants to local governments, comparative and multiprogram analyses of the distributional effects of federal aid allocation mechanisms, empirical research on the aid-granting behavior and fiscal responses of state governments, and further research on local responses to different forms of aid.

Reseach on Relationships between the Public and Private Sectors

To assess the indirect effects of federal policies on urban fiscal conditions, additional information is needed on the relationships between changes in the private economy and changes in local tax bases and service demands. The critical aspects to examine include the relationship between the local tax base and economic activity, the link between demography and service demand, and the net fiscal effects of demographic and economic changes.

Research on the Locational Incentives Created by Federal Programs

The key to understanding the fiscal impacts of federal policies that operate indirectly through the private sector is improved information on the incentives established by federal programs and the magnitudes of residential and business responses. Suggestions for research on these matters are provided in the *Economic Development* and *Population and Residential Location* reports.

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[1]The positions held by the Advisory Group are those held during 1973 and not necessarily their current positions.

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I. INTRODUCTION

The recent fiscal crisis in New York and other major American cities have drawn new attention to the dual role of the federal government in urban affairs: on one hand, a contributor to current problems; on the other, the main potential source of solutions and fiscal relief. Federal involvement with the cities is far more extensive than is suggested by the handful of explicitly urban federal programs. Both the public and private sectors of the urban economy are affected by such diverse policies as grants for social programs and facilities, transfer payments to individuals, tax treatment of housing and business investment, regulation of transportation rates and services, establishment of environmental standards, and enforcement of the civil rights laws. This constellation of federal policies has contributed to the major trends—suburbanization, interregional migration of businesses and households, and concentrations of the poor in the cities—that underlie the current financial difficulties of local governments in urban areas. It is now widely recognized that direct urban aid programs, such as Urban Renewal and Model Cities have had much less influence on urban development than the much broader array of federal programs and policies[1] that have affected urban areas indirectly by altering the economic and demographic environment. It has become customary to speak of an "implicit," or "hidden," urban policy in referring to the whole set of federal actions that have affected cities, often to their detriment, during the post-war years.[2]

This report examines the relationships between federal programs and policies and the fiscal conditions of local governments in urban areas. It covers both the federal programs that affect local budgets directly, such as federal grants-in-aid, and the policies that affect fiscal circumstances indirectly, such as federal transfer payments to individuals and federally created incentives to businesses to locate in more urbanized or less urbanized areas. It provides both a conceptual analysis of the effects of federal policies on local fiscal circumstances and a review of the relevant theoretical and empirical literature. It attempts to summarize what is known about these federal-local relationships as well as to identify major gaps in existing knowledge of the effects of federal policy.

This report is one of several products of a study of the impacts of federal programs and policies on urban areas conducted by Rand under the sponsorship of the Kettering Foundation. Other reports of the study examine federal impacts on private economic activity and population and housing patterns in urban areas. Since the content and organization of this report reflect the purposes of the entire study, a brief explanation of the overall study design precedes the introductory material pertaining specifically to this document.

[1] The term "programs and policies" is used throughout this report to encompass all federal expenditure programs, taxes, subsidies, regulations, and other activities that act, directly or indirectly, on local fiscal conditions. It is not limited to programs that are reflected in the federal budget, nor to explicit programs of assistance to subfederal jurisdictions.

[2] For examples of discussions of the "implicit" or "inadvertent" federal urban policy, see National League of Cities (1976) and Advisory Commission on Intergovernmental Relations (1976b).

THE URBAN IMPACT STUDY

The main purpose of the Rand-Kettering urban impact study is to evaluate the current capabilities for analyzing the effects of federal policy on urban areas and to determine what additional capabilities need to be developed. To accomplish this objective, two kinds of research have been undertaken: first, a conceptual analysis of the ways in which federal actions impinge upon urban conditions; second, a review of selected portions of the literature in urban economics and related fields. The conceptual analysis provides an overview of the network of linkages between federal policies and urban outcomes and a basis for deciding what empirical information is needed to assess urban impacts. The literature review investigates the availability of existing knowledge concerning each important link in the urban network and evaluates the adequacy of existing impact assessment techniques. Findings from both parts of the analysis have been used to identify gaps in existing knowledge and major needs for further development of impact assessment methodology.

Analysis of federal impacts on the urban system is a complex task. Many types of federal poliicies and many different urban outcomes need to be considered. Some of the more important relationships between federal policies and effects on cities are indirect. Typically, there are multiple channels of federal influence on particular urban outcomes and multiple links in the causal chains between policies and effects. The complexity of the problem makes it infeasible to analyze either the full range of urban outcomes or the full array of federal policies simultaneously. Therefore, to establish a manageable research design, the problem is subdivided along the following lines.

For the purpose of this study, the urban economy is viewed as consisting of three distinct, but interacting, sectors: (1) the private business sector, (2) the residential, or household sector, and (3) the urban public sector. The three main substantive reports of the study correspond to these three sectors. The effects of federal policy on activity in the urban private business sector are discussed in *The Urban Impacts of Federal Policies: Vol. 2, Urban Economic Development*, by Roger J. Vaughan (hereafter referred to as the *Economic Development* report). Federal influences on urban residential patterns and other behavior of the household sector are discussed in *The Urban Impacts of Federal Policies: Vol. 4, Urban Population and Residential Location*, by Roger J. Vaughan and Mary E. Vogel (hereafter referred to as the *Population and Residential Location* report). The effects of federal actions on the urban public sector are analyzed in the present report. The main findings from all three documents are presented in an integrative report, *The Urban Impacts of Federal Policies: Vol. 1, Overview*, which also examines the linkages among the three sectors of the urban system.

The advantage of dividing the subject matter into these three parts is that it permits subsets of urban outcomes and subsets of federal policies to be examined separately. The analysis of the federal impact on the business sector, for example, focuses on such outcomes as levels of output, employment, and investment in urban areas. In the residential, or household sector, outcomes include the size, composition, and spatial distribution of the population in urban areas and the quantity and quality of the housing stock. In the urban public sector, the major outcomes are the level and the mix of public services and tax burdens imposed upon residents of urban areas. The study plan permits each set of outcomes to be examined in detail

in a separate report. Equally important, most federal programs and policies can be classified according to the sector in which they have their initial, direct impacts. Federal grants to state and local governments have their initial effects in the urban public sector; federal subsidies and tax deductions for housing consumption have their first effects in the residential, or household, sector; and federal economic development programs, business taxes, and regulatory policies have their primary effects in the private business sector. Thus, the analysis of federal impacts on each sector begins by concentrating on the set of federal policies that affect the sector directly. The separate results of these sectoral analyses can then be brought together for the analysis of the more complicated chains of federal influence that cross sector lines.

Some of the more important impacts of federal policies upon the urban system involve federal actions that initially affect one of the three sectors, but that then have indirect effects on one or both of the remaining parts of the system. The following indirect effects are extensively discussed in the urban literature:

1. Policies aimed at the household sector that substantially influence residential location patterns (e.g., federal programs of housing assistance and highway construction) are likely to affect business location patterns as well. Businesses tend to follow labor supplies and markets in response to population shifts.
2. Policies that initially affect the business sector by altering the relative attractiveness of urban and suburban or northern and southern locations (e.g., federal energy policies, regulation of freight transportation, and locational tax incentives) are likely to have indirect effects on the urban public sector. Shifts in business activity cause changes in the relative sizes or rates of growth of tax bases in each area, and thereby in the ability of each area to support local public services.
3. Policies that initially affect the urban public sector (e.g., federal financial aid to local governments or federal assumption of local responsibility) are likely to affect both the business and residential sectors indirectly. Locational decisions of both firms and households are determined in part by the combinations of public services and tax rates offered in each area.

Because the sectors are interconnected, the discussion of federal impacts in each sector must consider both the federal actions that impinge directly upon the sector and the indirect consequences of federal actions that have their initial effects elsewhere. This does not mean, however, that it is necessary when analyzing, say, the federal influence on the local public sector, to consider the details of federal policies that affect the public sector indirectly via the business and household sectors. It is sufficient to consider the intersectoral connections among outcome variables. To illustrate, it is obviously an essential part of the analysis of federal impacts on urban fiscal conditions to consider the fiscal implications of federally induced changes in urban tax bases. The size of the tax base in an urban area depends on outcomes in both the business and household sectors—the level of economic activity, in the first instance, and the economic characteristics of the population and the magnitude of the housing stock, in the second. All federal policies that affect economic activity or residential patterns can be viewed, therefore, as having direct or indirect effects on the tax base. However, because those

policies impinge initially on the business and residential sectors, their effects are examined in the *Economic Development* and *Population and Residential Location* reports. Here, it is taken as given that a variety of federal policies influence the business and residential components of the urban tax base and the analysis moves directly to the issue of how tax base changes affect the services and taxes of local governments. This division of effort eliminates the need, while dealing with the urban public sector, to review the whole list of federal policies that have their initial effects in the business and residential sectors and that then have indirect public sector implications. The price of this economy of exposition, however, is that this report (and each of the companion reports) is not complete in itself. To obtain a full picture of the network of federal policy impacts, one must consider the three reports together. The final, integrative report brings together the various parts of the story and presents an overview of the main intersectoral connections.

SCOPE OF THIS REPORT

This report considers the effects on the urban public sector of two kinds of stimuli:

1. *Federal programs and policies that impinge directly upon the public sector.* As already indicated, the most important category of federal activity that falls under this heading is grants-in-aid to state and local governments. Other direct policies include federal "tax expenditures" on behalf of local governments, federal assumption of local (or state) service responsibilities, and federal laws and regulations that impose expenditure requirements on local jurisdictions.
2. *Federally induced changes in urban economic activity and urban population and residential location patterns that have implications for public sector finance.* The main categories of such changes are those that affect local revenue bases; those that alter the population make-up, and thereby the composition of local public service demands; and those that affect costs of providing services in urban areas.

Federal policies in both categories can be viewed as having a two-stage effect on local governments. First, federal programs and policies may alter the *fiscal opportunities* that are available to cities and other local jurisdictions. For instance, federal actions that decrease the tax bases in central cities or raise the costs of providing municipal services cause the fiscal opportunities of those cities to contract. The affected jurisdictions must choose between cutting back services or imposing higher tax rates on their citizens. Second, federal actions may influence *fiscal outcomes* at the local level—i.e., the expenditure and tax rate decisions that local officials make, given the opportunities available to them. This report examines the federal influence on both the fiscal opportunities and the actual levels of services and taxes in the local public sector. The fiscal outcome variables are relatively easy to define because they correspond closely to the normal expenditure and revenue categories of local government budgets.[3] In comparison, fiscal opportunity

[3] The term "fiscal outcomes," as used in this report, includes per capita levels of total spending, expenditure by function (education, health, highways, etc.), expenditure by character (current services, transfer payments, capital outlay), total revenue, revenue by source, and "real" values (dollar values deflated by appropriate price indices) of all of the above.

is a more elusive concept. A major task of Section III of this report is to give precise meaning to this seemingly vague term.

This report has three objectives, which parallel those of the urban impact study as a whole: It provides a conceptual framework for analyzing the influence of federal policies on urban fiscal conditions, summarizes existing research findings about the effects of federal actions on the conditions facing the urban public sector and the fiscal behavior of local governments in urban areas, and identifies major substantive and methodological gaps in the existing research and suggests some future research priorities.

The conceptual framework portion of this study is primarily a logical exercise, intended to develop a frame of reference within which the literature on urban fiscal affairs can be organized and evaluated. The framework also provides a basis for judging what information on the fiscal impacts of federal policies is needed for policymaking and, therefore, what research remains to be done. More specifically, the framework portion of the effort deals with the following concepts and issues:

1. *Definition and measurement of fiscal variables.* The most important definitions are of alternative measures of the fiscal condition, or fiscal well-being, of cities. It is also necessary, however, to examine definitional and measurement problems pertaining to such basic public finance concepts as fiscal capacity, tax effort, and demand for public services.
2. *Categorization of federal policies and programs.* For this analysis, it has been convenient to group federal activities according to the manner in which they affect urban fiscal opportunities (e.g., by modifying the demand for local services or by influencing service costs). However, it is also useful to distinguish among different modes of federal action, such as grants-in-aid, transfer payments, and regulation, and among federal policies with direct and indirect and long-term and short-term effects.
3. *A conceptual scheme of the network of relationships between federal policies and urban fiscal outcomes.* This, the heart of the conceptual framework, is based on an analysis of the determinants of budget options available to local governments. The resulting schematic model of factors that influence urban fiscal conditions provides the structure for the whole literature review and the effort to identify information gaps and research priorities.

The literature review portion of the study covers theoretical and empirical studies of the economics of the state and local public sector. The central element of this literature is a large body of studies of the determinants of state and local expenditures. These studies deal with the effects on local spending and taxes of federal and state grants-in-aid and of changes in major economic variables, such as the local tax base and the composition of the population to be served. Other categories of literature covered by this review include:

1. Studies of demands, or "needs," for public services in different places and by different segments of the population.
2. Studies of public service costs, including research on factors affecting public employees' wages.
3. The literature on methods of measuring public finance variables and characterizing the fiscal conditions of states and localities.

4. Studies of interjurisdictional (especially central city-suburban) spillovers of public service costs and benefits.
5. Analyses of the distributional implications of federal grants-in-aid and other programs.
6. Policy analyses and evaluations of existing and proposed federal programs.
7. The general literature on urban fiscal problems, including both academic studies and reports of official bodies and public interest groups.

The review emphasizes the potential usefulness of analytical models, methods, and substantive findings for examining the effects of federal policies on urban fiscal conditions. The review also summarizes the state of the art in each field; however, only secondary attention is given to the detailed methodological issues that are often emphasized in research reviews, except where those issues are crucial to the usefulness of the work for policy analysis.

An issue that cuts across all parts of this study is that of the unit of analysis. Does the term "urban fiscal conditions" refer to the fiscal situations of municipal governments, to the conditions of other local governments in urban areas, such as counties and school districts, to metropolitan aggregates of local government, or to larger regional agglomerations of these governments? There is no single answer. The appropriate unit depends on the issue at hand. Different portions of the report concern the fiscal conditions of large cities, conditions in central cities relative to those in their suburbs, and conditions in more and less urbanized regions of the country. The conceptual framework for assessment of federal impacts on the urban sector is developed in a sufficiently general form to encompass each of these levels of analysis.

LIMITATIONS

There are several important limitations on the subject matter covered by this report. These reflect both the resource limitations of the study and the division of effort among the three reports.

First, the research consists strictly of secondary and tertiary analysis of existing data and existing urban models. No new data are presented; no new empirical analyses are undertaken. The emphasis is on synthesizing findings from earlier work, reporting on the state of the art, and evaluating the usefulness for policy analysis of the research in each area. Only a small portion of the literature reviewed for this study specifically concerns the effects of federal policy on urban areas. It has been necessary to extract potentially relevant findings from diverse studies, most of which were oriented about issues far removed from those addressed in this report. Existing research ranges from case studies of different aspects of the finances of particular cities to sweeping reviews of national trends in urban affairs, making it difficult to assemble consistent bodies of evidence on specific issues and limiting generalizations that apply to whole classes of cities, or to all urban areas. The diversity of the literature has enhanced the importance of the conceptual framework as a device for giving some coherence to what would otherwise seem isolated and unrelated research findings.

Second, as already explained, the report avoids duplicating the material in the

two companion documents. This limitation applies especially to the discussions of federal policies that affect the local revenue base by influencing the structure of economic activity in urban areas and those that affect the demand for local public services by influencing the make-up of the population to be served by local governments. The relevant material is summarized in this report but the details are reserved for the *Economic Development* and *Population and Residential Location* reports, respectively.

Third, this report examines fiscal outcomes at the local level, but does not examine the relationship between fiscal decisions and the actual delivery of local public services. For instance, the impact of federal policies on local expenditure for police and fire protection is within the scope of this report, but the effect of those expenditures on levels of public safety is not. The reason for not considering service production and delivery is that the resources were not available to review the large, diverse, and specialized literature in that field.

A fourth limitation is that the report deals mainly with economic aspects of the network of relationships linking federal policies with urban outcomes. Although other disciplines have been not excluded, the bulk of the literature reviewed for this report comes from public finance, urban economics, and related fields. The focus is also on economic outcomes in the urban public sector—variables such as tax rates and service levels, rather than such noneconomic outcomes as political cohesion or fragmentation at the local level or constituent attitudes about local government performance. The economic emphasis is natural in a paper that centers on fiscal and budgetary behavior. However, it also reflects a desire to present as coherent a picture as possible of the federal impact on the public sector within the resources available for this part of the study.

ORGANIZATION OF THE REPORT

Section II is an analysis of the nature of urban fiscal problems and of the present and potential roles of the federal government in urban fiscal affairs. The first part of the section examines the various senses in which a city or urban area can be said to be suffering from fiscal difficulties. It distinguishes among conditions of absolute and relative fiscal stringency and acute fiscal crisis. The second part discusses the many kinds of federal policies that exert direct and indirect influence on urban fiscal conditions. The discussion focuses on the issues that urban financial difficulties pose for federal policymakers and on the kinds of instruments that could be used to carry out a coherent national urban policy.

Section III addresses the problem of defining and measuring the fiscal condition of a city and establishes a structure within which factors affecting urban fiscal conditions can be analyzed. The concept of the fiscal opportunity schedule is introduced and its use for comparing fiscal conditions of different cities or at different times is examined. The section reviews the problems encountered in quantifying such variables as the size of the local revenue base, the availability of external aid, the "needs" of the urban population for public services, the relative cost of public services, and the scope of local service responsibilities. There are also discussions of interjurisdictional service and tax spillovers and of the fiscal implications of federal tax provisions. The concepts developed in the section can be used to construct several composite indices of urban fiscal well-being.

Sections IV and V examine the effects of federal policies on each of the major fiscal factors defined in Section III. Section IV covers the federal policies and programs that impinge directly on the local public sector, the most important of which are federal grants-in-aid. The discussion of grant programs explores the structure of the federal-state-local fiscal system and analyzes the implications for urban areas of different forms of federal aid and different methods of distributing federal grants among states and localities. Other direct policies examined in Section IV include federal tax expenditures on behalf of local governments, federal assumption of state and local responsibilities (or federal action to induce states to assume local responsibilities), and federal laws and regulations that directly impose service obligations or costs on local jurisdictions. Section V treats federal policies that affect urban public finance indirectly through the private sector. The major types of policies considered are those that affect the business and household portions of the local tax base, those that influence local demographic characteristics related to the demand for public services, and those that influence local service costs. The two sections, taken together, constitute a catalog of means by which the federal government can alter the fiscal options available to cities and other local jurisdictions.

Section VI reviews the literature on local fiscal responses to changes in the various fiscal opportunity factors. It summarizes empirical findings on the effects of various kinds of grants-in-aid on spending patterns of municipalities, school districts, and other units of local government. It also reviews findings about the effects on local expenditures and tax rates of changes in local tax base, personal income, the composition of the population to be served, and the costs of providing services. The section concludes with an appraisal of the state of the art in this area of research.

Finally, Section VII performs three functions. It summarizes the main theoretical and empirical findings reported in the earlier chapters; identifies major gaps in existing information; and offers tentative judgments about the types of research that would be feasible and valuable to undertake in order to eliminate some of the major deficiencies in existing knowledge.

II. URBAN FISCAL PROBLEMS AND FEDERAL POLICY

Despite all that has been written on urban fiscal distress, scholars and public officials are not in agreement either about how the problem should be defined or about the issues that it poses for the federal government. The principal sources of confusion are, first, that urban issues look different from national and local perspectives; second, that diverse phenomena and symptoms have been referred to as indicators of fiscal distress; third, that no federal goals or missions have been formulated concerning either urban finance, specifically, or urban affairs, more generally; and fourth, that even given an agreed-upon federal goal and a diagnosis of the problem, it is not clear what modes of federal intervention are appropriate, feasible, or likely to be effective. This section attempts to sort out some of the issues that arise in defining urban fiscal problems and in delineating the federal interest in them.

URBAN FISCAL PROBLEMS FROM A NATIONAL PERSPECTIVE

To the immediate victims of financial pressures on the cities, there is little doubt that urban fiscal problems exist and that they are serious. City residents facing deteriorating services, taxpayers paying higher rates, and public officials who must decide which groups of their constituents to antagonize are likely to have little patience with those who ask whether urban finance is a "real" federal issue. The problem is also widespread geographically. Although there is a definite regional component to urban fiscal distress—the Northeast and Midwest are more severely affected than other areas—no region of the country lacks financially troubled cities. Enough places and people are affected to make the problem national in scope.

Moreover, urban fiscal problems are not likely to go away by themselves. Although the heightened pressure on cities during the last few years is partly attributable to macroeconomic developments—the recession of 1974-77 and the surge of inflation that began in 1972—urban fiscal problems are also interwoven with more general and longer-term aspects of urban decline. The fundamental factors include substantial outmigrations of middle-class populations from the central cities to the suburbs and from the older urbanized regions to the newer, growing, less urbanized areas of the South and Southwest; parallel shifts in the distribution of economic activity and employment; and increased concentrations of poor, dependent, high service-consuming populations in the urban centers. The loss of economic activity in the older urban centers and the downward trend in urban populations (which has now spread from central cities to the suburban portions of many metropolitan areas)[1] may be slowed but are unlikely to be reversed by national economic recovery. Without external intervention, either to relieve the public sector directly or to improve the long-term economic outlook for the cities, there seems to be little prospect for an end to the process of urban decline.

[1] See Morrison (1975) for an analysis of post-1970 patterns of metropolitan population decline.

Nevertheless, the issues are not nearly as clear-cut from a societal perspective as they may seem to the affected parties and their public representatives. There is a logical gap between the finding that cities are in trouble and the conclusion that it should be a federal policy to "save" them or to counter the economic and demographic trends that have undermined their public sectors. Even if a general policy of federal intervention on behalf of cities were adopted, it is not at all clear what strategy could be followed without paying an unacceptably high price in foregone economic development and impaired individual welfare. Consider, for example, the cases of middle-income families who leave central cities for suburbs and business firms that shift their operations from the urban Northeast to the "sunbelt" area of the South and Southwest. To the cities and people left behind, such moves may represent fiscal losses—tax base reductions that are greater than the accompanying decreases in service demands. To the migrating households and firms themselves and the areas in which they settle, the moves usually bring economic gains. Therefore, the developments that harm the cities may be beneficial from the standpoint of the national economy.

This does not mean that urban decline should be considered a benign phenomenon merely because it results from individual decisions in response to market forces. One argument to the contrary, frequently advanced by spokesmen for the cities, is that the suburbanization and "sunbelt" migration processes are partly attributable to federal policies that are biased against the more urbanized areas. For instance, there is evidence that federal transportation policies have systematically altered patterns of transportation costs to the detriment of central cities and large urban areas.[2] To the extent that shifts in economic activity and population are brought about by such policies, rather than by changes in the inherent economic attractiveness of different areas, they may represent societal losses rather than gains. Therefore, the question of whether existing policies are biased against the cities is one factor to consider in deciding whether new federal policies in favor of cities are justified. A second argument is that the private economic gains resulting from suburbanization and southward migration may be offset by social costs. For instance, the reduction in economic opportunities for minorities and poor people in the central cities that results from outmigration of businesses is a factor not likely to be taken into account in private calculations. Federal actions aimed at offsetting the adverse social consequences of urban decline may be appropriate even if "biases" in existing federal policy are not found to be a significant causal factor. However, urban decline itself, without evidence that federal actions have contributed to the problem or that social losses are being incurred, may be a poor base on which to build an urban federal policy favoring urban areas.

Several approaches could be taken by the federal government to relieve the fiscal strains created by the economic and demographic shifts away from cities. One would be to attempt to stem the flow of population and economic activity from the central cities and older urbanized regions. A second would be to accept the underlying changes but to provide sufficient aid to the cities to permit them to maintain their public services. A third would be to focus on the remaining urban populations, rather than on the cities themselves, and to attempt to relieve problems of poverty and remove barriers to individual mobility. It would be difficult to decide which

[2] An analysis of the differential geographical effects of federal transportation programs is provided in Section VI of the *Economic Development* report.

approach, if any, is appropriate without addressing some major, unresolved policy issues: Do the suburbanization and regional migration processes yield net economic gains, or are they responses to federal and state policies that are biased against the cities? Is revitalization of the older urban centers a realizable goal and, if so, at what cost to other parts of the nation? Most important of all, what is the intrinsic value (in terms, e.g., of culture, human enrichment, and other intangibles) of preserving the cities? These issues, on which a coherent national policy for the cities would seem to depend, have only begun to be explored.

The difficulties of defining the national problem of urban finance are also brought out by the narrower question of which cities are in trouble and which are most in need of assistance. Recent public discussions of urban fiscal problems have focused on the large cities that have been forced to retrench on services, raise taxes, or take special measures to meet their financial obligations—cities like New York, Detroit, and Philadelphia. These cities are not poor in terms of per capita income or tax base, nor are they cities with extraordinary concentrations of poor people. For the most part, they are cities that have offered substantially higher levels of public services than are available in most urban communities in the United States. In general, there appears to be little correlation between symptoms of fiscal distress and measures of poverty, either of the public sector or the urban population (Reischauer, 1976; Clark, 1976). As the opponents of aid to New York City pointed out repeatedly during that city's financial crisis, a federal subsidy to New York would have represented a transfer of resources to people enjoying relatively abundant public services from people receiving much less generous services from their own local governments. Even given the will to aid the cities, therefore, it would be no easy task to devise an appropriate and equitable national policy for targeting the available resources to the most pressing urban problems.

The complexities and ambiguities of the issues, as seen from a national perspective, do not imply that there should be no federal response to the problems of the urban public sector. They do imply, however, that federal policies should rest on a more detailed and differentiated analysis of urban fiscal problems than seems to underlie the recent pleas of urban spokesmen for federal aid. One step toward such an analysis is to distinguish among the qualitatively different kinds of fiscal problems that afflict the cities and to examine their respective policy implications. The following subsection outlines one possible aproach to such an analysis.

TYPES OF FISCAL PROBLEMS

The literature on urban public finance, especially that of the recent "crisis" period, mixes together several conceptually distinct types of fiscal problems. Some discussions focus on public sector poverty—the problems of jurisdictions that are less able than others to support adequate public services. Other discussions emphasize the effects of tightening budget constraints. Still others concentrate on the dynamic problem of adjusting to changing financial circumstances. This analysis distinguishes among three different types, or levels, of fiscal problems:

1. Fiscal disadvantage.
2. Fiscal decline.
3. Acute fiscal crisis.

Each has a different pattern of incidence among the urban centers of the United States; each has its own particular implications for the future of the cities; and each would require different types of short-term and long-term federal policy solutions.

Fiscal Disadvantage

A city or urban area is fiscally disadvantaged if it is less able than other comparable units to support standard levels of public services for its residents. Fiscal disadvantage is analogous to family poverty. Just as a household with little income or with a large number of dependents is unable to secure a high standard of living, a city with a small revenue base, high service costs, or a large number of children to educate and poor people to assist with welfare and social services is unable to provide services comparable to those of more favored jurisdictions at a comparable tax rate. Areas with these characteristics must either exist with below-average services or impose heavier taxes than other areas to provide comparable public benefits.

Fiscal disadvantage is a relative concept. Which places are labeled "disadvantaged" depends upon the unit of analysis and the reference group. For instance, many northern central cities would be considered disadvantaged when compared with their suburbs, but the same cities appear to have advantages when compared with the lower-income, less developed cities of the southeastern states. The list of disadvantaged urban areas in the United States also depends on whether the Standard Metropolitan Statistical Area (SMSA) or central city is selected as the unit of analysis.

The concept of fiscal disadvantage has received much attention (under several different labels) in discussions of intrametropolitan and interstate fiscal disparities. A number of studies have documented the fiscal disparities between the central city and noncentral city portions of metropolitan areas (see, for example, ACIR, 1967 and 1971; Campbell and Sacks, 1967; Bahl, 1969; and Sacks and Callahan, 1973). The general findings of these studies are that the suburbs have higher per capita incomes than the central cities in their metropolitan areas, fewer poor people, and probably lower service costs. These advantages may be partly offset by greater demands for public schooling in the suburbs and by the greater ability of central cities to export tax burdens to nonresidents. Although the data are not available that would permit precise comparisons of service needs and service costs in the central city and noncentral city portions of metropolitan areas, it appears that in most areas a given rate of tax effort would support a higher standard of services in the suburban jurisdictions.

It is interesting to note that comparisons of the foregoing kind are not frequently made among cities or metropolitan areas in different parts of the country. Moreover, the fiscal problems that have dominated recent public discussion are obviously not problems of fiscal disadvantage. New York City, which has been the prime example of a fiscally troubled city, is rich compared to most urban communities in the United States. It could support a relatively high level of per capita expenditure for local services with considerably less effort than is routinely exerted by other large cities.[3] Many of the other problem-laden cities of the Northeast would also

[3] This is not so much because New York City has a high per capita income, but because of the large tax base represented by its immense concentration of commercial property. Thus, if "effort" is measured

rank relatively high in ability to pay for public services for their residents. Such cities as San Antonio and Tampa, which have low levels of per capita income and wealth, are not usually considered as places with severe fiscal problems. On the contrary, they are seen as parts of the prospering and relatively trouble-free sunbelt. A sharp distinction must be drawn between problems of relative jurisdictional poverty, which have been emphasized in analyses of intrametropolitan fiscal disparities, and the issues that emerge from New York and Detroit-style crises or, more generally, from the process of urban fiscal decline, which have little relationship to poverty of the afflicted cities.

Fiscal Decline

The term "fiscal decline" denotes absolute or relative contractions in budget constraints of urban local governments. An absolute contraction has taken place when the revenue produced by a given rate of taxation buys a lower level of services in one period than it did in a previous period. A city may find that its fiscal options have contracted for any one (usually a combination) of the following reasons: a decline in the real tax base, a reduction in the real value of aid from state and federal governments, an increase in the proportion of above-average service consumers in the local population, or an increase in service costs. A relative fiscal decline has occurred when tax rates have had to increase more rapidly (or decrease less rapidly) in the area in question than elsewhere to maintain existing levels of service, or, equivalently, when the revenue generated by existing tax rates has allowed for slower growth in services (or required more stringent service cutbacks) in the area in question than in other areas. To say that a city is in a condition of relative decline does not necessarily mean that its services are deteriorating or its tax rates are rising. Relative decline may occur along with economic growth and increasing public revenue. What is declining is the relative attractiveness of the city, in terms of the public services that it offers and the taxes that it levies, as a residential or business location. An unchecked relative decline can be transformed into an absolute loss of economic activity, as businesses and households discover that conditions are more favorable outside the city's boundaries or in other regions of the country.

Central cities have been declining relative to their suburbs, and older urban regions have been declining relative to the South and Southwest. These declines are associated with the same long-run economic and demographic trends previously mentioned—suburbanization of economic activity and of upper-income and middle-income populations, shifts of populations and industry from more urban to less urban regions of the country, and increased concentration of poor and dependent persons in the cities. In the case of central cities and suburbs, there has been a reversal in relative financial ability from the ratio that prevailed in the immediate post-war period. (ACIR, 1969) When the North is compared to to the South, there has not yet been a reversal, but there has been steady diminution in resource disparities between urban areas in the two regions.[4]

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by the tax rate on property, New York has a higher revenue yield per unit of effort than most other urban jurisdictions.

[4] Data on changes in interregional income differentials over time are reported in the *Economic Development* report, Section II.

From one point of view, the problem of absolute fiscal decline is common and routine, while from another perspective, it is new and threatening. In one sense, a city's budget constraint must have contracted every time the city was forced to increase tax rates to maintain existing levels of public services. By that definition, many cities, and many suburban communities as well, experience tighter constraints as a frequent—even an annual—occurrence. That a city needs to increase its tax rates to maintain its service levels, however, does not necessarily indicate a fiscal decline in an economically meaningful sense. If the local tax base is inelastic (does not grow as rapidly as community income), higher tax rates do not necessarily represent a greater burden on the community's real resources. A much more serious problem faces a community that must tax away an increasing proportion of the income or wealth of its residents to sustain its established levels of services. It appears that such situations have become more common, at least since the economic downturn of 1974. One indication is that the pattern of local responses seems to have altered: until recently, gradually rising property tax rates were a source of complaint but in most places were accepted as a matter of course and accompanied stable or rising levels of services. Now, however, many urban governments have concluded that they can no longer increase tax rates. Service cutbacks and layoffs of public employees have become an increasingly common response to the contraction of urban fiscal options.[5]

A local government facing a true absolute decline in fiscal opportunities is forced to make unpleasant choices: it must either reduce the quantity or quality of its public service offerings, increase the real tax burdens imposed on its citizens, or do some combination of the two. For city residents, the implications are higher tax payments in return for the same or poorer services, reduced "quality of life" because of deterioration of the public sector, and the possibility of conflict and disruption as the affected groups—public employees, public service beneficiaries, and taxpayers—fight over the distribution of the losses. These conditions provide much stronger and more immediate incentives than mere relative decline for residents and businesses to look elsewhere—outside the city's boundaries or to the cities and suburbs of more favored regions—for new homes and places of employment.

There has been no empirical determination of the degree to which recent fiscal declines in large cities are due to cyclical phenomena or to an intensification of established demographic and economic trends. In the past, the finances of the urban public sector have been moderately sensitive to economic downturns, but have been able to recover along with the general economy.[6] In the 1974-76 recession, the downturn was coupled with a high rate of inflation; thus, cities and other local jurisdictions were affected more drastically than in previous cycles. The effects have been reinforced by the new combination of the "sunbelt" growth phenomenon and the concomitant long-term decline of the Northeast.

[5] The recent wave of service cutbacks is documented in National League of Cities (1976a) and U.S. Congress, Joint Economic Committee (1977).

[6] The effects of purely cyclical developments on local finances have been moderated by the ability of local governments to draw on their accumulated surpluses during recessions. However, the most recent recession was too severe for this alone to be sufficient to maintain services. For a recent empirical analysis of the cushioning effect of surpluses, see Gramlich (1977).

Acute Fiscal Crisis

The problem that has attracted the most public attention and has forced federal policymakers to think about urban fiscal issues is what may be called the true fiscal emergency, or acute fiscal crisis. This occurs when the tightening of a city's budget constraint is too drastic, too sudden, or too long deferred to be adjusted to by normal budgetary mechanisms and when, as a result, the adjustment involves major disruptions of existing revenue and expenditure patterns and failures to honor existing obligations.

It is difficult to draw a line between "acute crises" and the more normal forms of adjustment to tightened budget constraints, except where, as in New York, the crisis has a specifically financial character. The New York crisis resulted from a prolonged delay in adjusting to a fundamental service-revenue imbalance. Successive New York City administrations were able to defer the unpleasant choice between reduced services and higher taxes by borrowing to finance current operations. Eventually, there came a time when lenders became unwilling even to refinance ("roll over") existing debt, much less to finance new current account deficits. New York was then faced with the impossible task of doing immediately what should have been done over many years, and it necessitated the involvement of the state and federal governments to avert a financial collapse.[7] Thus far, no other large city has suffered the type of financial crisis that New York had but some have teetered on the brink and have been saved only by external aid or by the most drastic service reductions. The difficulty of distinguishing an acute crisis from the more usual kind of fiscal decline problem is exemplified by Detroit: This city was able to make far more drastic cuts in its expenditures than have yet been made by New York without requiring the types of state and federal intervention that were needed by the latter.

The consequences of an acute crisis include more severe service disruptions than would have been necessary with an orderly adjustment; shocks to the urban economy, as large numbers of public employees are laid off simultaneously; disruption of financial markets; and losses of municipal autonomy to the superordinate governments that must intervene to save the city from fiscal collapse.

Prevalence, Severity, and Duration of Fiscal Problems

No one has yet assembled a data base that would support a rigorous statistical analysis of the prevalence and severity of urban fiscal problems. The lack of such a data base—and of some of the necessary analytical methodology—is the motive for the extensive discussion of measurement issues in Section III. Nevertheless, on the basis of recent literature and public discussion, the bulk of which is either qualitative or focused on specific cases, certain broad conclusions may be offered about the incidence of the different kinds of urban fiscal problems defined above.

First, the problem of relative fiscal disadvantage always exists, by definition. Some jurisdictions and some metropolitan areas will always be below average in ability to support public services. The relevant issue for urban policy, however, is not the existence nor even the degree of interjurisdictional fiscal disparities but

[7] For analyses of the underlying economic causes and financial aspects of the New York city crisis, see Congressional Budget Office (1975) and Gramlich (1976b).

rather the presence of systematic differences among different kinds of local jurisdictions. Although the evidence is not current (the latest comprehensive statistics on government finance are from the 1972 Census of Governments), it appears that the main trends are the increasing relative disadvantage of central cities compared to suburbs, and the decreasing differences in ability to support services among the different regions of the country. Not all central cities are fiscally disadvantaged in relation to their suburbs. In 1972, for example, Seattle, San Francisco, Los Angeles, and Denver all had larger per capita tax bases than the remainders of their respective SMSAs.(Peterson, 1976) But even these cities have not been growing as rapidly as their suburbs. Therefore, although not relatively disadvantaged, they probably are in conditions of relative decline. Only the rapidly growing sunbelt cities seem to be immune, and in some instances it is only their annexation powers that keep them from joining the list of relatively declining jurisdictions.[8]

The problem of relative urban decline appears to be chronic. It antedates the current recession and will almost certainly continue after economic recovery. There is no way to determine now whether the long-term rate of decline is growing or diminishing. It is difficult, however, to be optimistic in light of evidence that the more severely affected northern cities have not been recovering from the recession as rapidly as other parts of the country.

Second, many cities have experienced an absolute tightening of their budget constraints but the incidence is likely to diminish with national economic recovery, except in areas with serious urban pathologies. The recession has led to reduced economic activity and tax bases in cities; has induced state governments to curtail their grants-in-aid; and has expanded the demand for unemployment insurance, welfare, public health care, and other state and local services. Inflationary pressures have been reflected in rising wage and nonwage costs of public services. As economic growth resumes and inflationary pressures recede, budget constraints are likely to relax in most places. There will be a residual list of cities in absolute decline, and the list may be somewhat longer than it was in 1972 as a result of irreversible damange to urban economies during the recession.

Third, a rash of New York-style financial crises is unlikely. Although the underlying economic and demographic conditions are similar in many cities to those in New York, the financial aspects of the New York situation seem to be unique. The New York experience has perhaps lessened the odds of similar developments elsewhere. It has drawn the attention of public officials at all levels to municipal financial practices, making it unlikely that other cities would be able to accumulate current account deficits in the manner of New York. In any event, the legal frameworks within which most cities operate would preclude similar borrowing policies and accounting practices. Also, financial institutions, alarmed by the near-default of New York, will probably behave differently in the future in assessing municipal creditworthiness. Moreover, the precedent of federal emergency loans to New York constitutes a kind of de facto automatic stabilizer for the local public sector. Therefore, acute fiscal crises should be rare and should not constitute a significant national problem.

If these assessments are correct, they point to the following general conclusions about the relative importance, from a national policy perspective, of the three kinds

[8] For discussions of the fiscal significance of annexation powers, see Muller (1975) and Peterson (1976).

of urban problems: The type of fiscal problem that is the most devastating to the affected city—an acute financial emergency—is likely to be of little importance on a national scale. The second most significant problem to the affected city—an absolute contraction of its budget constraint—is likely to have a substantially lower incidence and a less severe impact after economic recovery than now. There will be a certain stratum of cities—those in advanced stages of decay—that will continue to experience absolute declines in economic activity and productive population and, therefore, in ability to support public services. A sufficient number of urban residents are likely to be affected to make this an important national problem. The more common situation, however, is likely to be one of slow growth or stagnation in central cities and older urban regions, coupled with continuing relative decline, as compared with suburban areas and the more rapidly growing regions of the country. The salient national policy issue will be how to cope with relative decline—and how to stop it from escalating to absolute decline in more places. It is from this perspective of the probable future that the issue of federal involvement with urban fiscal problems is approached in the remainder of this report.

THE FEDERAL ROLE AND FEDERAL POLICY INSTRUMENTS

The Current Federal Role

At present, the federal government has no explicit or coordinated policy wth respect to urban finance. Only a few federal programs are designed to affect urban fiscal conditions but many have important, if often inadvertent, fiscal consequences. The current federal role is not one that Congress has chosen or even considered, but one that has evolved out of many programmatic decisions, most of which had nothing whatever to do with urban affairs.

The federal activities that come closest to being programs of financial aid to cities are the General Revenue Sharing (GRS) program and two programs of countercyclical aid, Antirecessionary Fiscal Assistance (ARFA) and the public service employment components of the Comprehensive Employment and Training Act (CETA). However, all three provide aid to the entire state and local government sector rather than specifically to urban areas and the two countercyclical programs are temporary and aimed at stabilizing the economy rather than aiding the cities.[9] Other federal programs that have been developed to assist cities include the Urban Renewal and Model Cities programs (both now superseded), the Community Development Block Grant (CDBG) program that succeeded them, the urban mass transportation program, and such housing assistance programs as support for public housing and housing rehabilitation. However, these are all intended to subsidize particular kinds of public or private investment in cities rather than to assist urban jurisdictions with their general fiscal problems. Although there has been much

[9] General Revenue Sharing distributes money relatively uniformly among localities (in per capita terms) and makes only a minor and uneven contribution to the relative fiscal positions of cities (Nathan and Adams 1977). The two countercyclical programs are considerably more favorable to cities, both because they focus on jurisdictions large enough to have their own unemployment data and because they allocate funds according to the rate of unemployment, which has been higher in urban areas than elsewhere during the most recent recession.

recent discussion of programs that would channel aid specifically to fiscally distressed cities, no such program has yet been enacted into law.

The main federal influence on urban fiscal conditions is not exerted by the handful of explicit financial aid and urban development programs mentioned above but through a much larger array of federal policies aimed at problems that are not particularly urban in character. Some of these influence urban budgets directly by channeling funds to local governments or altering the responsibilities of the urban public sector. Others affect fiscal conditions indirectly by changing the underlying economic and demographic circumstances of urban areas. Taking into account both the direct and indirect effects, most domestic expenditure programs and many regulatory and law enforcement activities of the federal government belong on the list of federal policies that influence urban fiscal conditions.

The federal programs with the most important *direct* effects on urban finance are grants-in-aid to state and local governments, which now amount to more than $70 billion per year. These grants affect both the revenue available to local governments and the level and composition of local spending. The distribution of grant funds among states and localities is an important determinant of the relative fiscal well-being of different types and sizes of jurisdictions. Major grants-in-aid, other than those already mentioned, include programs for construction of highways, water and sewer systems, and other public works; grants for education, health, law enforcement, and other social services; and grants that support state and local transfer payment programs, such as Aid for Families with Dependent Children (AFDC) and Medicaid.

Several categories of federal policy other than grants also have direct effects on the revenue and expenditure sides of local budgets. The provisions of the federal tax code that make state and local taxes deductible and municipal bond interest tax exempt provide subsidies to the state-local public sector. Federal assumption of service responsibilities, as exemplified by the 1974 federalization of certain welfare programs under the Supplemental Security Income (SSI) program, affords direct fiscal relief to states and municipalities. Federal regulations in such areas as civil rights and environmental protection impose service obligations and costs on subfederal jurisdictions.

Too many federal policies affect urban conditions *indirectly* to list individually. These policies fall into two broad groups: those that impinge on the private business sector and affect the rate and pattern of urban economic development and those that impinge on the residential, or household, sector, and affect the size, composition, and spatial distribution of the urban population. The economic and demographic impacts of these policies are reflected in changes in the size of the local revenue base and the level of demand for public services, and thus in the fiscal condition of the local public sector.

Examples of federal policies that have had important effects on urban population and residential location patterns include the following:[10]

- Direct subsidies and tax deductions for housing, which have stimulated the growth of suburbs and the outmigration of middle-income and upper-income households from the cities.

[10] For details concerning the policies cited here, see the *Population and Residential Location* report.

- Federal aid for highway construction, which has facilitated both suburbanization and shifts of population and industry from the older metropolitan areas to the sunbelt.
- The federally aided welfare programs, which may have encouraged the concentration of poor and minority populations in the northern central cities and indirectly stimulated white and middle-class flight to the suburbs.
- Grants for water and sewer systems, which have encouraged residential and business decentralization and favored newer, developing areas over the established urban centers.

Examples of policies that have influenced the rate of urban economic development include:[11]

- Federal transportation policies generally, including construction grants, operating subsidies, and regulatory activities, which have tended to shift the relative costs of doing business in favor of the less urbanized areas.
- Federal tax policies concerning business investment (capital gains, taxation, investment credits, depreciation rules, etc.), which have encouraged construction of new plants rather than maintenance of old ones, favored investment in land, and otherwise rewarded expansion in developing areas.
- Environmental protection programs, which have imposed relatively higher costs on urban businesss because of the greater difficulty of meeting environmental quality standards in densely populated areas (but which may also be making cities more attractive as places to live).
- Federal energy policies, which have resulted in lower fuel and power costs in the sunbelt states than in the northern industrial regions (but which now may be making central cities relatively more attractive from the standpoint of cost).

Although it is possible to cite specific policies that have favored cities, the general thrust of the federal government's indirect influence on local finances has been anti-urban. Both the policies affecting population movements and those affecting the investment and locational decisions of business firms have encouraged spatial decentralization—suburban development and the migration to the sunbelt. A corollary has been the increasing concentration of the poor and dependent in the older urban centers. The fiscal consequences include declining or stagnant urban tax bases and increased per capita demands for public services. These are the ingredients of central city fiscal disadvantage relative to the suburbs and northern fiscal decline relative to the sunbelt regions.

The presence of a network of policies that affect urban fiscal conditions indirectly, and generally adversely, presents both a problem and an opportunity to federal urban strategists. The problem is that the effects of any future program of direct fiscal assistance to cities could be offset by the anti-urban locational incentives built into other federal programs. This implies that direct aid, if it is to have significant long-run effects, would have to be provided on a large scale—substantially larger, presumably, than the aid now being provided to cities under the various antireces-

[11] For details, see the *Economic Development* report.

sionary grants. However, the same indirect policies provide an opportunity in that they could be altered to achieve pro-urban objectives. By changing distribution formulas, eligibility rules, and other program characteristics, it would be possible to reduce or reverse many of the existing anti-urban locational incentives. Thus, by utilizing some of the same mechanisms that have harmed cities in the past, it would be possible to aid them without establishing new, explicit programs of urban assistance.

Alternative Federal Strategies for the Future

Recent calls for a more comprehensive and coherent urban policy raise a series of interrelated issues: What specific urban problems might a federal urban policy address? What strategies could be adopted to attack those problems? What specific policy instruments would be useful for implementing each approach? Different strategies and different sets of instruments become relevant depending on whether urban problems are interpreted as problems of particular jurisdictions, problems of geographical areas, or problems of specific population groups.

Strategies for Helping Jusridictions. The classic jurisdicational problem is that of a financially straitened city in an otherwise economically sound metropolitan area. The city may be located in a prosperous and growing region, but may fail to share in or benefit from that growth because its territory is fixed and the growth is taking place in politically independent suburban jurisdictions. The political boundary between the city and its suburbs makes it possible for the city to be fiscally disadvantaged or declining relative to the surrounding communities. This reinforces other incentives for movement of firms and households away from the urban core. By crossing the municipal border, taxpayers can escape the burdens of paying for redistributive services for lower-income people in the cities. They can support good schools for their children without contributing to the support of schools for children of the poor. If the boundary line were not there, there would still be incentives for suburbanization, but fiscal advantage would not be one of them. The only escape from the financial burdens of central city services would be to leave the metropolitan area entirely. The fiscal well-being of the central city would rise or fall with that of the whole metropolis.

Three strategies especially suited to addressing the jurisdictional aspects of urban fiscal problems are (1) structural change policies aimed at reducing metropolitan fragmentation, (2) development of locational incentives aimed at countering the pressures for further suburbanization, and (3) changes in aid formulas to favor the central city portions of metropolitan areas. The rationales for these three approaches are as follows.

The reason for considering structural change policies is that there is a relationship between the restrictive boundaries of older cities and the difficulties that those cities have encountered in financing public services (Peterson, 1976; Bahl and Puryear, 1976). Several urban scholars have analyzed policies that, in Peterson's words, would have the effect of "reuniting the city with its market area." The possibilities range from permitting cities to tax suburban commuters (as in Philadelphia) and establishing limited tax base sharing (as in the Minneapolis-St. Paul SMSA), to strengthening the cities' annexation powers and establishing special-purpose or general-purpose metropolitan governments. Movement in these directions has been slow and political resistance by suburban jurisdictions has been

formidable (ACIR,1973). Prospects for the more comprehensive forms of metropolitanization and tax base sharing are considered dim by those who have studied the problem most extensively (Peterson, 1976; Bahl and Puryear, 1976; Bahl and Vogt, 1975). However, the potential effects of federal involvement in this area have scarcely been explored. Although the federal government has done little thus far to influence decisions about substate governmental structure, there are many ways in which incentives for structural change could be built into the various federal grant programs. The possibilities include requiring that certain grant-aided programs be conducted by metropolitan-wide authorities, rewarding areas that establish such authorities with extra aid, and requiring that matching funds be raised from uniformly applied metropolitan or regional taxes. Potentially, these devices could made a significant contribution to reducing the fiscal disadvantages of major central cities.

A strategy based on locational incentives is suggested by the finding that many existing federal programs create incentives that favor the suburbs. A pro-urban strategy could involve either the elimination of existing anti-urban biases or the development of new incentives deliberately skewed toward the central cities. Examples of these approaches include equalization of the tax treatment of owner-occupied and rental housing, revision of infrastructure subsidy programs to place new construction and maintenance of existing systems on an equal footing, modification of federal transportation policies to make funds for rapid transit as readily available as funds for highways, and establishment of federal credit programs for housing rehabilitation comparable in scope and terms to the existing programs for new home construction.

The most straightforward strategy for reducing the fiscal disadvantages of central cities relative to their suburbs would be to redistribute federal aid in the cities' favor. A number of the larger existing grant programs could be used as the vehicles for this type of assistance. The potential role of a grant redistribution strategy has recently been pointed out by Nathan and Dommel (1977), who argue that

> unless and until bold new spending initiatives are adopted, a strategy of multiple formula changes may be the best short-term solution for those who seek to increase help for the cities. Such a strategy involves seeking out opportunities across the spectrum of federal domestic programs for existing programs to be modified, and in some cases expanded, to deal more effectively with urban hardship conditions.

The specific features of existing grant programs that could be modified to shift funds toward the cities are reviewed in Section IV.

Strategies for Helping Geographical Areas. In contrast to the problems referred to above, fiscal problems associated with the declines of entire regions or metropolitan areas or isolated (nonmetropolitan) cities have little to do with jurisdictional boundaries. These problems arise out of geographical differentials in economic development. To reduce the differentials, the federal government would have to counteract the economic and technological forces that have made the declining areas relatively unattractive to businesses and households. Alternative strategies for accomplishing this task include (1) provision of public intrastructure and public services to make the areas more attractive to investors, (2) subsidization of businesses that locate or invest in the target areas, and (3) adoption of measures

to make the areas more attractive as residential locations, on the theory that businesses will follow people.

Investment in infrastructure is the traditional mode of federal action to promote economic development. The infrastructure strategy is exemplified by the federal highway and water and sewer grant programs, the regular and antirecessionary public works programs, and the Appalachian and rural development programs. In the past, most such programs were designed to favor the less-developed, less-urbanized parts of the county and thus contributed to the urban porblem rather than to its solution. One approach to promoting urban development is to restructure the infrastructure programs to favor the cities. However, since urban areas are, by definition, "developed" and not lacking in the basic categories of public capital (although their capital stocks may be run down and obsolete), more will be required than simply reallocating the conventional types of capital construction funds from prospering to declining areas.

Subsidization of business activity or investment in declining urban areas is the most direct and obvious urban development strategy, but it has been used to only a very limited extent. The recently enacted Urban Development Action Grant (UDAG) program, which seeks to use federal aid as a lever to generate private investment, and proposals for a federal urban development bank, which presumably would make subsidized loans to urban businesses, indicate an upsurge in interest in this approach. Should this interest be sustained, there are many specific policy instruments that could be considered: direct cash subsidies or tax concessions, federally operated programs or state and local programs supported by federal grants, long-term or "start-up" assistance, and subsidies linked to investment, output, or employment.

The concept of encouraging urban economic development by providing *residential* location incentives has not yet been tested. However, evidence that businesses follow people at least as much as people follow jobs (see the *Economic Development* report, Section IV) indicates that this is a strategy worth exploring. The rationale is that if the central cities and the urbanized regions can attract more nonpoor households, then business firms, seeking workers and customers, will also be drawn to urban locations. Alternative methods of providing residential incentives include pro-urban changes in housing policy, support for the services and facilities that yield residential amenities (such as police protection and pollution control), and relief to urban taxpayers, especially through federal or state assumption of the costs of redistributive local services.

Economic development strategies and strategies of assistance to fiscally troubled urban jurisdictions are compatible, but not substitutes for one another. A developmental strategy, if successful, will generate additional revenues for the local governments in the affected areas and help to alleviate their fiscal problems. A strategy of fiscal relief, however, will not necessarily stimulate economic development. Some forms of short-run fiscal assistance to cities may actually impede economic development by creating unfavorable locational incentives.[12] This underscores the importance of matching the strategy to the problem under attack. If the

[12] For instance, grants for public housing, social services, and transfer payment programs may be welcomed by city officials because they relieve the pressures on municipal budgets and provide public-sector jobs, but in the longer-run, the programs supported by those grants may increase the concentration of lower-income persons in the city, thereby undercutting the city's fiscal position.

problem is fundamentally developmental, assistance to the affected jurisdictions, unless specifically designed to encourage development, is likely to have no lasting beneficial effect. Such aid may make the local public sector permanently and increasingly dependent on federal relief, while doing nothing to reverse the downward trend in the local economy.

Strategies of Helping People. A third view of urban fiscal problems is that they are primarily the problems of particular groups of adversely affected city residents. Specifically, it has been suggested that the main rationale for federal involvement in urban fiscal affairs is that the departure of upper-income and middle-income taxpayers and erosion of the business tax base have left the urban public sector with insufficient resources to serve the largely poor, elderly, and dependent populations "left behind." This position leads to sharply different policy prescriptions than the views that the federal goal should be to revive declining urban economies or to "save the cities."

Alternative federal strategies to alleviate the individual hardship associated with aspects of urban fiscal decline include the following:

1. *A strategy of shoring up redistributive services for disadvantaged central city populations.* Relevant options include welfare reform, federalization of welfare, or a negative income tax; additional federal aid for education, health, welfare, and other social services or federal or state assumption of the responsibilities for financing those services; and expanded subsidies for lower-income housing.
2. *A strategy of enhancing the economic opportunities of central city residents.* Possible tactics include targeted manpower development programs, programs to provide transportation from the inner city neighborhoods to decentralized workplaces, and the provision of social services, such as childcare, that improve the access of lower-income households to the labor market.
3. *A strategy of enhancing population mobility and discouraging the concentration of "problem" populations in the declining cities.* The possibilities under this heading include support for lower-income housing outside the central cities, financial incentives to encourage relocation to growth areas, and equalization of welfare payments and other redistributive services among states to eliminate the present incentives for poor people to locate in the high-benefit paying northeastern cities.

The last-mentioned strategy underscores the philosophical difference between the people-oriented view of the urban problem and the jurisdiction- and place-oriented views. The people-oriented view implies that saving the cities is not an end in itself, but only a possible means of helping those injured by urban decline. Accordingly, strategies of federal aid to the urban public sector or of federally subsidized economic development should be evaluated according to their effectiveness in aiding the target group and should be compared with policies that help the same people by facilitating their resettlement in more favorable environments. Policies that facilitate dispersion and, in a sense, accelerate urban decline may be more effective for achieving the people-oriented goals than policies aimed at preserving and revitalizing the older cities.

III. THE DETERMINANTS OF URBAN FISCAL CONDITIONS

This section develops three important elements of the analytical framework for assessing federal impacts on urban fiscal conditions. First, it addresses the question of how the fiscal condition of a city or urban area can be defined and measured. Following a discussion of existing approaches to measurement, a new approach is presented in which a city's fiscal position is summarized by comparing its fiscal resources to an index of its relative expenditure "needs." It is shown that this approach provides a method of comparing the fiscal conditions of different cities and of quantifying the degree of improvement or decline in a city's fiscal position from one year to the next. Second, the section contains an analysis of the major factors that determine the fiscal condition of a local government and that are associated with variations in fiscal conditions among cities and over time. This analysis considers the roles of the local tax base, assistance from external sources, demographic and other determinants of service demand, service costs, the scope of a jurisdiction's fiscal responsibilities, and several other factors. Third, the section contains a discussion of the conceptual and technical problems involved in quantifying each major determinant of fiscal condition. It is shown that although there are methodological problems and data deficiencies, the means are at hand to construct rough measures of each major factor that affects an urban area's fiscal condition. Therefore, the measurement approach outlined here is feasible to implement empirically, at least on a preliminary basis.

The analysis of the determinants of urban fiscal conditions presented in this section provides the structure for the discussion of federal policy impacts in Sections IV, V, and VI.

THE STATE OF THE ART IN ANALYZING URBAN FISCAL CONDITIONS

There are many ways of characterizing the fiscal state of a city or urban area, but some reveal more about the fundamental economic situation than others. Too much attention has often been paid to measures that are partial, peripheral, or short-run in orientation. For instance, commentators on urban affairs frequently compare the current budget surpluses or deficits of different cities, with the implication that surpluses are "good" and that cities with large deficits are "in trouble." But the size of a surplus or deficit, by itself, reveals nothing about the adequacy of a city's public services, the magnitude of the tax burdens on its citizens, or whether the city's fortunes are rising or declining. Therefore, the level of the surplus or deficit is not a very useful or general indicator of fiscal condition.

Another measure that has been emphasized recently, primarily because of the events in New York, is the creditworthiness of a city as shown by Moody's and Standard and Poor's bond ratings, interest rates, and access to the money markets. While creditworthiness is important, its significance can easily be overemphasized.

Credit financing is generally only a minor source of city revenue, and credit ratings in most cities have little to do with ability to raise revenue for current operations.

During the past few years, there have been a series of studies on urban fiscal problems (Gramlich, 1976; Muller, 1975; Clark et al., 1976; and Peterson, 1976). The authors of these studies, recognizing that the fiscal situation of a city cannot be summed up by a single indicator, or even a small number of key indicators, have examined the behavior of a large number of variables that relate to fiscal problems of cities. These variables fall into two broad classes: direct budgetary measures (expenditures, revenues, deficits, debt), and measures of underlying economic and demographic conditions.

The study by Gramlich (1976) compares fiscal conditions in New York and other cities by examining the size and composition of municipal revenues, expenditures, and deficits, as well as municipal use of and access to credit. Gramlich finds that it is necessary to relate spending and revenue figures to the breadth of each city's functional responsibilities and to take account of such factors as population size and density, income and poverty levels, federal and state grants, and governmental structure, all of which influence financial conditions and which vary considerably among cities.[1]

The Urban Institute's study of fiscal conditions in growing and declining cities (Muller, 1975) considers urban expenditure and revenue patterns and the economic and demographic factors related to both. Among the factors that Muller identifies as relevant to urban expenditure patterns are the range of services offered by different cities, cost factors (wages and benefits of public employees and economies or diseconomies of scale), physical characteristics (including the location of municipal boundaries), and needs for capital outlay. The principal factors on the revenue side are measures of local revenue-raising ability (income and property tax base) and the availability of intergovernmental aid. The study attempts to demonstrate that these factors are all related to rates of growth or decline in urban population and employment.

The study by Terry Clark and his associates at the University of Chicago (Clark et al., 1976) offers a set of 29 "indicators of fiscal strain." These include variables describing the level and composition of municipal revenue and expenditures, measures of outstanding debt and interest payments, measures of local revenue effort, and a variety of ratios among these variables. Clark and his colleagues attempt to relate these fiscal magnitudes to demographic, economic, social, and political characteristics of the cities and thereby to provide a basis for identifying cities that are likely to experience fiscal problems.[2]

George Peterson (1976) presents an analysis of "fiscal strain on cities" that centers on factors that influence rates of growth in urban expenditures and reve-

[1] Gramlich presents a series of regression equations linking the budgetary magnitudes to the underlying characteristics of cities and their populations. He uses these equations to examine the extent to which variations in fiscal behavior (especially between New York and other cities) can be explained by differences in the problems and conditions that different cities face, as opposed to differences in their responses to given conditions. This distinction is roughly similar to that between "fiscal opportunities" and "fiscal outcomes," which is the basis of the analysis presented below.

[2] Like Gramlich, Clark proceeds by regressing fiscal variables on the variables representing underlying conditions. He finds that intercity variations in fiscal outcomes are associated with certain socioeconomic variables, indicators of the scope of functional responsibility of each city, certain "leadership" and governmental structure variables, and requirements for capital outlays. However, he concludes, along with Gramlich, that only a fraction of New York City's fiscal difficulties can be accounted for by the city's unusual circumstances.

nues. On the expenditure side, he emphasizes the problems of adjusting to declining population, the selective character of population loss, high service costs associated with city size, and the growing burden of pension fund obligations. On the revenue side, he considers the behavior over time of local revenue-raising capacity (especially the property tax base), and of intergovernmental aid. Although Peterson does not attempt to meld these disparate factors into an overall index of fiscal strain, his analysis implies that fiscal strain should be measured by the rate at which growth in revenue sources falls short of the rate needed to support established levels of services.

What is to be learned from the large and diverse set of variables discussed in these studies? It is important to remember that the authors of these works do not try to develop measurement concepts or techniques; rather, they apply existing data to an analysis of current urban problems, includng the fiscal crisis in New York. Nevertheless, an examination of the types of variables used in the studies reveals shortcomings in the existing conceptual basis for assessing fiscal conditions and in the measurement state of the art.

On the positive side, this group of studies has established two important points: First, many factors must be taken into account in comparing fiscal conditions among cities or over time. Second, both budgetary magnitudes (revenues, expenditures, debt, and deficits) and variables representing underlying conditions (economic activity, population composition, costs, geography, and governmental structure) are relevant in assessing fiscal conditions. On the negative side, no one has yet performed the integrative analysis needed to provide comprehensive indicators of urban fiscal conditions. There has not been a systematic analysis of the connections between the underlying economic, demographic, and physical characteristics of cities and the budgetary variables that describe the cities' fiscal operations and financial status, and methods have not been developed for combining the many variables that seem to be relevant into broad indicators of the fiscal condition of a city.

The need for a more integrated approach can be demonstrated by examining some of the variables that have been used in making intercity comparisons. Three of the studies cited above present intercity expenditure comparisons, implying that by comparing levels of spending (either total spending or spending by function), something can be learned about the severity of the fiscal problems facing different cities. But what can be learned? If one city spends more than another (or even more than all others), there are several possible explanations. One is that the city that spends more may be especially wealthy. If so, it cannot be concluded that the city is worse off because it has a higher expenditure burden. A second possibility is that the city receives more assistance from external sources. If so, that city would have to be classified as advantaged, rather than burdened, by its high public outlays. A third possibility is that the city has no greater access to revenue than others but that the local electorate prefers to allocate more of its income to local public services than do the electorates of other cities. If so, it cannot be said that the high-expenditure city is in either a better or worse fiscal position than other cities. Its citizens merely choose to enjoy the benefits of better-financed public services and to incur the corresponding tax burdens. A fourth possibility, and the one that people presumably have in mind who see high expenditure as an indicator of "strain," is that the problems or needs of the city are so great (crowding, crime, blight, etc.) that

more money must be spent to attain the same levels of service adequacy as other cities can attain at lower cost. Where this explanation is correct, high spending may be associated with fiscal distress. However, the level of expenditure, in the absence of information on the factors that have determined that level of expenditure, tells us little about either the fiscal situation of a city or the well-being of its residents.

In the same vein, the Clark study (1976) presents intercity comparisons of revenue effort (ratios of local taxes to personal income or to the value of assessed property) in a manner that clearly implies that high revenue effort represents a problem. But, as indicated above, a city may tax itself heavily because its electorate prefers and may be willing to pay for varied and high-quality service offerings. Other things being equal, of course, a low rate of revenue effort is preferable. If one city has comparable services but lower tax rates than another, the first city is clearly better off. But low taxes may also mean poor services. Therefore, revenue effort alone cannot summarize the fiscal well-being of a city.

There is less ambiguity about the directions in which basic demographic and economic variables influence fiscal conditions. Other things being equal, one city is in a more favorable fiscal position than another if its revenue base is larger, if its service costs are lower, and if it has smaller proportions of poor and dependent persons in its population. Of course, each of these variables is only a partial measure. No single variable is decisive. City A may have a smaller tax base than City B but the public service needs of City A's residents, as reflected in such indicators as percentage of poverty and percentage of the population in school, may be sufficiently lower than City B's to compensate for the difference.

Focusing on selected economic or demographic factors can lead to incomplete or misleading conclusions. For instance, one recent study (Nathan and Adams, 1976) developed a "hardship index" for use in comparing the severity of urban problems among metropolitan areas and between central cities and their suburbs. The index is an equal- weighted sum of variables representing six socioeconomic characteristics of urban populations: unemployment, dependency, educational attainment, income level, crowded housing, and poverty. Although these indicators certainly reflect urban problems, they do not necessarily represent fiscal problems. It is possible, for example, that some cities that rank high on the hardship index would also rank high in per capita tax base and intergovernmental aid and that these cities would be better able to finance public services than cities with less "hardship." Nathan and Adams warn that "this distinction between social, economic, and fiscal distress is an important one" (p. 60). Nevertheless, their index has already been treated as an indicator of fiscal difficulty in more than one study of urban fiscal problems (Congressional Budget Office, 1975; Nathan, 1977).

In sum, although many variables related to urban fiscal conditions have been identified, no study has developed a systematic method of measuring the fiscal condition of a city or comparing the fiscal situations of different cities or of the same city at different times. Such a method is needed for an analysis of the impacts of federal policies on urban fiscal conditions. Therefore, before turning to the question of how federal programs affect urban finance, this section addresses the conceptual issue of what fiscal condition means and how it encompasses the many variables that have been discussed in the fiscal problem literature.

FISCAL OPPORTUNITIES AND FISCAL OUTCOMES

Much of the confusion about interpretation of individual variables related to urban fiscal conditions stems from the failure to distinguish between *fiscal opportunities* and *fiscal outcomes*. Interurban and intertemporal comparisons may be made in terms of both but the comparisons of opportunities and of outcomes mean different things and pertain to different kinds of policy issues.

Fiscal opportunities are the budgetary options available to the government of a city (or the set of local governments that serve a specified urban area). These options can be defined by computing the levels of public services than can be supported at each given level of tax effort (or, equivalently, by computing the level of tax effort that is required to support each level of public services).[3] To say that City A has more favorable opportunities or, equivalently, a less restrictive budget constraint than City B, means that a given array of real services (a given amount of public education per school-aged child, a given level of police protection per resident, and so forth) can be provided at a lower rate of tax effort in the former city than in the latter. The range of opportunities available to a city government can be summarized by constructing a schedule showing the level of per capita services that each rate of tax effort will permit. Methods of constructing such a schedule are discussed later in this section.

Fiscal outcomes are measures of the services provided and the tax burdens imposed by local governments. They are computed from the variables universally presented in budget documents—expenditures (total and by function), revenues (total and by source), surpluses or deficits, and additions to or subtractions from debt. The most important outcome variables are "real" (constant-dollar) values of per capita spending (obtained by deflating expenditures by appropriate price indices), and measures of the real tax burdens imposed by local governments on their citizens. The former measures the aggregate amount of services provided by the local jurisdiction; the latter, the cost of those services to the local taxpayers. Other fiscal outcome variables include such easily computed combinations of budgetary variables as expenditure shares by function, revenue shares by source, and rates of growth in per capita expenditure and revenue amounts.

There are many factors associated with variations in fiscal opportunities and fiscal outcomes among places and over time. A few are directly under federal control and others are subject to federal influence.

The primary determinants of local fiscal opportunities are the socioeconomic characteristics of the local population, the characteristics of the local private economy, the decisions of higher-level governments that define the functional responsibilities of cities, and the availability of external financial assistance. Fiscal outcomes are determined by fiscal opportunities to the extent that local political choices are limited by the available budgetary options, but outcomes also depend on other attributes of local areas (and states) that influence the budgetary decisions of local governments. Figure 3.1 depicts the relationship between fiscal opportunities and fiscal outcomes. It shows that fiscal opportunities depend on local eco-

[3] In this discussion, the terms "tax effort" and "revenue effort" are used interchangeably. Strictly speaking, the latter is a broader concept because it encompasses the portion of own-source revenue derived from sources other than taxes. The nontax sources (e.g., fees for municipal services) are not analyzed separately in this report.

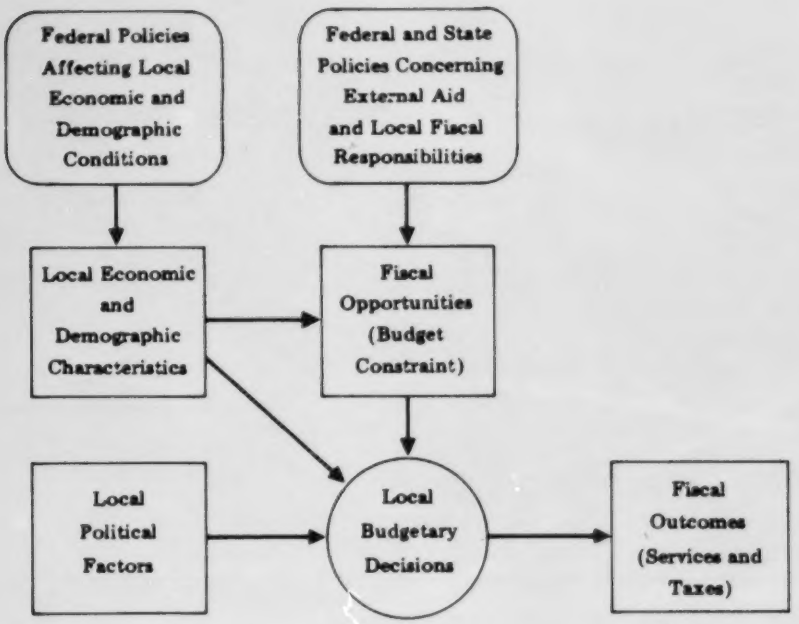
Federal Policies Affecting Local Economic and Demographic Conditions
Federal and State Policies Concerning External Aid and Local Fiscal Responsibilities
Local Economic and Demographic Characteristics
Fiscal Opportunities (Budget Constraint)
Local Political Factors
Local Budgetary Decisions
Fiscal Outcomes (Services and Taxes)

Fig. 3.1—Main Determinants of Local Fiscal Opportunities and Fiscal Outcomes

nomic and demographic characteristics and on certain decisions of state and characteristics and on certain decisions of state and federal federal authorities; that the economic and demographic variables can be influenced by some of the same factors that determine opportunities plus other political characteristics of the localities.

More concretely, there are many specific reasons why one city, or one urban area, may be able to provide more or better public services than another even though it imposes no greater tax burdens on its citizens. Some of these differences in opportunity are related to intercity differences in ability to raise revenue; others are related to differences in demands, or needs, for public services. There are two main factors on the revenue side: The first is that cities differ in wealth or tax base. Other things being equal, a city that has more taxable income, property, or economic activity than another can provide more services at any given level of tax effort. The second is that cities differ in the amounts of financial aid they receive from state and federal governments. Other things being equal, the more aid per capita a city receives, the less it has to tax its own residents to support a given level of public services. Other factors on the revenue side include the degree to which a city can levy its taxes on nonresidents, such as commuters (the more taxes that can be exported, obviously, the less residents need to pay to support a given level of spending) and the degree to which local taxes are offset by federal or state tax deductions.

There are several important factors on the demand side. First, one city may have higher proportions of its population than another in subgroups that consume greater than average amounts of services. The most important of these subgroups are children attending public school and the poor receiving income maintenance

payments and related social services. The larger the proportion of such residents in a jurisdiction's population, the more it costs per capita to provide a given level of service to each eligible service recipient. Second, industrial and commercial enterprises may be more demanding of public services (water and sewage, police and fire protection, etc.) in one city than in another, thereby raising the per capita cost of serving the private business sector. Third, there may be intercity differences in the salaries needed to attract public employees and in the prices of other resources used by local governments. The higher the cost of public services relative to the general level of prices in the community, the more private consumption must be sacrificed to provide a given unit of public output. Fourth, one city may be responsible for providing a broader range of services than another. A given rate of local tax effort can support higher-quality services if the range of services is narrow than if it is broad. Of course, if a city does not provide a particular service, some other government unit (state, county, school district) must impose taxes to provide it. Nevertheless, from the point of view of the individual location jurisdiction, narrower responsibilities may mean less stringent budgets. Fifth, one city may face greater demands for services from nonresidents than another, and may have to levy higher taxes on its own citizens to satisfy those demands. Differences in demands for exported services are the counterpart of the previously cited differences in ability to export taxes. Finally, a strictly financial factor on the demand side is that one city may have more inherited financial obligations than another (debt service, retirement, etc.) and therefore may have to levy higher taxes without being able to provide more current services. All these factors can vary over time as well as among places and are just as relevant in explaining patterns of fiscal improvement or decline as in accounting for intercity variations in fiscal conditions.

Because fiscal outcomes respond to changes in fiscal opportunity, all the factors mentioned above affect outcomes as well. In addition, fiscal outcomes are determined by local political decisions, which, in turn, are influenced by many attributes of urban communities. Among the factors that past research indicates may be relevant are such socioeconomic characteristics of city populations as occupational status, educational attainment, family structure, and ethnicity; such political characteristics of jurisdictions as representation of different segments of the population, interest group strength, and development of party organizations; and such government structure variables as the degree of local home rule and the lengths of officials' terms in office.[4] Some attributes of cities may influence both fiscal opportunities and budgetary choices of public officials. For example, the proportion of the poor in an area determines the per capita tax burden required to support any given level of welfare payments, but may also indicate the relative political strength of poor voters. Therefore, the same variable, the percentage of the population that is poor, probably influences fiscal outcomes through both channels.

APPROACHES TO MEASUREMENT: REVENUE FACTORS

The preceding subsection listed a number of factors, some pertaining to local

[4] The results of empirical studies of expenditure determinants are reported in Section VI. Generally, these confirm the importance of demographic and socioeconomic variables but provide little evidence that purely political factors play a significant role. However, there are many hypotheses concerning the political factors that have never been adequately tested in econometric models.

revenue-raising ability and some to the demand for local public services, which enter into the budget constraint of an urban area. This subsection and the following one define these factors more precisely, present illustrative numerical data, and summarize the approaches to measuring each factor that have been proposed in the literature.

Unit of Analysis

Depending on the policy issue, it may be appropriate to focus the analysis of urban fiscal conditions on municipal governments or to expand it to include urban areas, more broadly defined. There are both geographical and jurisdictional alternatives. Geographically, the unit of analysis can be defined as a city, a larger urbanized area (Census definition), or an entire metropolitan area (SMSA). Jurisdictionally, coverage may be limited to the finances of municipal governments or may include all local governments serving a given geographical area—counties, townships, school districts, and other special districts. It is possible to assess the factors bearing on fiscal conditions of individual cities, whole metropolitan areas or larger urban aggregates—e.g., all large cities in the Northeast. The discussion of concepts and measurement methods in this subsection and the next is in sufficiently general form to allow for all these possibilities. There will be references throughout to "cities" and "urban areas" but those terms should be interpreted liberally and interchangeably so as not to exclude the alternative units of analysis mentioned here.

The Components of Local Revenue

A city or urban area has two kinds of financial resources: its *own revenue base*, on which it can impose taxes or fees, and *external aid* from federal, state, or other superordinate governments. The local revenue base (always expressed as a per capita amount) is a measure of the total resources that the city can draw upon to raise public revenue. It includes not only the income or wealth of city residents but also that of nonresidents subject to municipal levies. The amount of revenue obtained by a city from its own sources may be expressed as the mathematical product of the local revenue base and the rate of *fiscal effort*, or *revenue effort*, exerted by the city government. Revenue effort is simply the percentage of the revenue base that the city chooses to take in revenue. For example, if the measure of the base is per capita income, the rate of effort is per capita revenue from own sources expressed as a percentage of per capita income. External aid is the per capita amount of money received by the city in grants from higher-level governments. These grants come in different forms. The most important distinction is between *lump-sum* grants, which are not affected by local budgetary decisions, and *matching* grants, which vary according to the level of local spending or revenue. Grants may be accompanied by constraints on the use of funds. Both matching requirements and earmarking of funds must be taken into account in assessing the net financial contribution made to cities by state and federal assistance.

Tables 3.1 and 3.2 show the amounts of revenue that various classes of urban governments derive from their own sources and from intergovernmental aid. Table 3.1 presents data from the 1972 Census of Governments on the revenues of municipal governments and all types of local governments in metropolitan areas. Note

Table 3.1

Sources of Revenue of Municipal Governments and Local Governments in Metropolitan Areas, 1971-72

Item	All Local Governments in Metropolitan Areas		All General-Purpose Local Governments in Metropolitan Areas		Municipalities in Metropolitan Areas		Municipalities With Populations of 100,000 or More	
	Per Capita Amount (dollars)	Percent of General Revenue	Per Capita Amount (dollars)	Percent of General Revenue	Per Capita Amount (dollars)	Percent of General Revenue	Per Capita Amount (dollars)	Percent of General Revenue
General Revenue	568	100	349	100	296	100	416	100
Own Sources	361	64	227	65	199	67	260	63
Taxes	279	49	173	50	148	50	197	47
Property	229	40	125	36	94	32	118	28
Other	50	9	48	14	54	18	79	19
Current Charges	57	10	36	10	32	11	63	15
Other	25	4	19	5	19	6		
Intergovernmental Revenue	207	36	121	35	97	33	156	38
From State Government	180	32	102	29	74	25	114	27
From Federal Government	27	5	19	5	23	8	42	10

SOURCE: Bureau of the Census, *1972 Census of Governments*, Vol. 5, *Local Government in Metropolitan Areas*, Washington, D.C., 1974.

Table 3.2

Sources of Revenue of Large City Governments and Local Governments in Large Metropolitan Areas, 1973-74

Item	Municipal Governments of the 48 Largest U.S. Cities (populations of 300,000 or more)		All Local Governments in 74 Major Metropolitan Areas (populations of 500,000 or more)	
	Per Capita Amount (dollars)	Percent of General Revenue	Per Capita Amount (dollars)	Percent of General Revenue
General Revenue	597	100	721	100
Own Sources	348	58	441	61
Taxes	257	43	335	46
Property	144	24	268	37
Other	113	19	67	9
Current Charges	55	9	68	9
Other	36	6	37	5
Intergovernmental Revenue	249	42	280	39
From State Government	171	29	226	31
From Federal Government	71	12	55	8

SOURCES: Bureau of the Census, *City Government Finances in 1973-74* and *Local Government Finances in Selected Metropolitan Areas and Large Counties: 1973-74*, Washington, D.C., 1975.

that cities in general, and large cities in particular, tend to rely less on property taxes and more on federal aid than other urban governments. The federal aid figures may be misleading, however, because the Census Bureau's practice is to treat all federal aid passed through to cities by state governments as intergovernmental aid from the state. Table 3.2 presents 1974-75 Census Bureau data on the composition of the general revenue of the largest municipal governments in the United States and of all local governments in the largest metropolitan areas. These data show that the large cities tend to receive larger portions of their revenue in the form of intergovernmental aid than do other types of local governments. This is the net effect resulting from a relatively small allotment of state aid and a substantially larger relative share of federal aid. Large cities also derive smaller portions of their revenue from taxes than do other local governments in large SMSAs. At the same time, however, they rely much more heavily on nonproperty taxation than do other metropolitan governments. These comparisons demonstrate that the unit of analysis is a critical consideration in any analysis of urban fiscal opportunities.

Measurement of the Local Revenue Base

Two major approaches to measuring a local jurisdiction's ability to raise revenue from its own sources (often referred to as local fiscal capacity) have been developed in the literature. One is to identify the revenue base with the broadest possible measure of community income or wealth that can be drawn upon for public revenue. The other is to compute an appropriately weighted sum of the individual

bases from which local revenue can be derived—the local property tax base, the sales tax base, and so forth. Both methods have been used in the past for comparing the fiscal capacities of different states and local jursidictions. Each method has its own technical advantages and shortcomings.

Income as the Measure of Fiscal Capacity. Per capita personal income is the most frequently used measure of local fiscal capacity. It is available from decennial census data even for relatively small jurisdictions and is published more frequently for states and metropolitan areas. Per capita income has been chosen to represent "ability to pay" in most economic studies of state and local expenditure behavior (see the summary of those studies in Section VI). It has also been used as the fiscal capacity measure in several federal grant programs, such as General Revenue Sharing, that seek to distribute funds in an inverse relationship to the ability of aid recipients to raise funds from their own sources. The logical argument for the use of income as a capacity measure is that all taxes must be paid out of income regardless of whether they are levied on income directly or on sales, payrolls, property, or any other tax base.

Table 3.3 illustrates the degree to which per capita income varies among metropolitan areas. The range of variation among the selected large SMSAs shown is about 1.6 to 1. Much of this variation is interregional and would be reduced if appropriate corrections were made for regional price or cost of living variations. However, there is significant intraregional variation as well—e.g., a range of about 1.4 to 1 among per capita income figures for the Northeast SMSAs shown in the table.

The principal shortcomings of per capita income as a fiscal capacity measure are that (1) income data may not fully reflect interarea differences in personal wealth (i.e., holdings of financial and nonfinancial assets), (2) the level of personal income in an area does not necessarily reflect the amount of business income available to be taxed by local authorities, and (3) using the personal income of a jurisdiction's residents to measure the jurisdiction's fiscal capacity neglects the possibility of tax exportation ("spillovers") across jurisdictional boundaries.

The spillover problem is that a significant portion of local taxes, but a portion that varies from city to city, may be paid by nonresidents of the tax-levying jurisdiction. Spillovers occur where taxable property is owned by nonresidents, where sales taxes are paid by nonresident shoppers, where income or payroll taxes are imposed on commuters, and where business taxes are passed on to nonresident owners or stockholders or to consumers in other jurisdictions. To correct for spillovers, it would be desirable to adjust the per capita income data by a factor that represents the fraction of the local tax burden borne by nonresidents.

The problem of measuring tax spillovers and the closely related problem of measuring service benefit spillovers have been discussed extensively in the literature on "suburban-central city exploitation." This literature is summarized in Greene, Neenan, and Scott (1974, Chapter II). In terms of measurement, the lesson learned from this literature is that quantification of tax spillovers is a painstaking process—one that rests on numerous assumptions about tax incidence and that requires detailed analysis of income distributions in individual jurisdictions, commuting and shopping patterns, and the composition of each jurisdiction's local taxes. No one has yet developed a more aggregative procedure that would make it possible to estimate spillover ratios for a cross-section of cities. Until that is done,

Table 3.3

Variations in Per Capita Income Among Large Metropolitan Areas, 1971

Metropolitan Area (SMSA)[a]	Per Capita Income (dollars)	Index of Per Capita Income (base = average for all SMSAs)
Phoenix, AZ	4,167	92
Anaheim-Santa Ana, CA	4,020	89
Los Angeles-Long Beach, CA	5,087	113
Riverside-San Bernardino, CA	3,593	80
San Diego, CA	4,262	95
San Francisco, CA	5,633	125
San Jose, CA	4,572	101
Denver, CO	4,658	103
Washington, D.C. - MD - VA	5,238	116
Miami, FL	4,706	104
Tampa, St. Petersburg, FL	3,812	85
Atlanta, GA	4,637	103
Chicago, IL	5,191	115
Indianapolis, IN	4,441	99
New Orleans, LA	3,881	86
Baltimore, MD	4,338	96
Boston, MA	4,813	107
Detroit, MI	4,991	111
Minneapolis-St. Paul, MN	4,841	107
Kansas City, MO - KN	4,692	104
St. Louis, MO - IL	4,490	100
Newark, NJ	5,151	114
Buffalo, NY	4,322	96
Nassau-Suffolk, NY	4,720	105
New York, NY	5,900	131
Cincinnati, OH - KY - IN	4,326	96
Cleveland, OH	4,709	104
Columbus, OH	4,076	90
Portland, OR - WA	4,436	98
Philadelphia, PA - NJ	4,509	100
Pittsburgh, PA	4,287	95
Dallas, TX	4,408	98
Houston, TX	4,393	97
Seattle-Everett, WA	4,484	99
Milwaukee, WI	4,682	104

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, "Metropolitan Area Income in 1971," *Survey of Current Business*, Vol. 53, No. 5, Washington, D.C., 1972.

[a]Includes all SMSAs with population greater than one million.

it will not be possible to implement an approach to fiscal capacity measurement that requires adjustment of per capita income data by a tax exportation factor.

The Weighted Tax Base Method of Measuring Fiscal Capacity. The second approach to fiscal capacity measurement is to define the local revenue base as a weighted sum of the individual bases on which local jurisdictions may levy taxes. Two advantages of this approach are that (1) it reflects the components of income or wealth that cities are legally authorized to tax, and (2) it takes into account all taxable resources, whether owned by residents or not. The principal conceptual and technical issue that arises in applying this method is how to obtain the weights. Two methods have been proposed. According to the "representative tax system" method pioneered by the Advisory Commission on Intergovernmental Relations (ACIR, 1971; Manvel, 1971), the weights should be the average tax rates applied to each tax base by all jurisdictions of the class in question. The revenue base, thus defined, is an index of the amount that would be raised in each jurisdiction if it applied average tax rates to each of its actual tax bases. This method has been used to compare fiscal capabilities of states and large counties (ACIR, 1971). Recently, fiscal capacity measures based on the ACIR technique were used to evaluate the distribution of general revenue sharing funds among states (Nathan, Manvel, and Calkins, 1975). In principle, the same method could be applied to cities or metropolitan areas. The other method of obtaining weights is to derive them statisticaly by regressing per capita city revenues on the whole array of per capita tax bases. This method has been discussed and demonstrated in Akin (1973) and Morgan (1974). Dr. Robert Reischauer of the Congressional Budget Office has developed several alternative state-level capacity indices using different forms of the revenue regression equations, but his results have not yet been published.[5] There are theoretical reasons to prefer the statistically based method; namely, it allows for interactions among the tax bases and for differences in local conditions that may lead some cities to rely heavily on one kind of tax and some cities on another. However, the method is relatively new and a number of the problems that arise in specifying the statistical model and estimating the weights still have to be resolved.

Measurement of the Availability and Form of External Aid

No serious problems arise in determining the amounts of aid available to cities from federal, state, and other external sources. The relevant data may be extracted from the accounting records of both aid-granting and aid-receiving governments. However, certain conceptual problems arise in quantifying two other attributes of external aid: (1) the degree to which expenditures of the aid-receiving locality are matched, at the margin, by state or federal grants, and (2) the degree to which the conditions that accompany some forms of financial aid affect the value of that aid to the recipient jurisdiction.

The distinction between lump-sum and matching aid is important. With lump-sum grants, it is the *amount* of aid that affects local fiscal opportunities. With

[5] Reischauer presents three different types of indices: one constructed by the ACIR method, one by regressing revenue on tax base variables only, and one by regressing revenue on tax base variables plus certain "control" variables that account for interstate differences in rates of reliance on different revenue sources. The three methods yield substantially different results.

matching grants, it is the matching *rate* that is important.[6] A detailed analysis of the grants available to a city and of the city's own expenditures may be necessary to separate lump-sum from matching grants and to determine the effective matching rate. For example, closed-ended matching grants, which are used in many federal programs, may take the form of matching or lump-sum aid, depending on whether the aid recipient utilizes the grant fully—i.e., whether the locality spends enough of its own funds to earn the maximum grant amount. Most federal and state grants to cities are either lump-sum grants or fully utilized matching grants. The main exception appears to be aid for welfare programs, which is open-ended in that the amount of aid depends on the number of welfare recipients. Methods have been developed for distinguishing lump-sum from matching aid (Inman, 1971), but they are difficult and time-consuming to apply.

Conditions attached to intergovernmental aid raise both conceptual and practical problems. Grant funds that are accompanied by binding constraints may be less valuable to the recipients than grant funds that are unrestricted. But the key word is "binding." Constraints will affect the value of the grant only insofar as they force the locality to spend its money on programs or projects different from the ones it would have chosen if given the same amount of unrestricted aid. Grantees are often able to substitute external aid for local funds that would otherwise have been allocated to the aided program, thereby circumventing the constraints. The theoretical apparatus exists for determining when constraints are binding (see, e.g., Wilde, 1969). However, as a practical matter, it would be difficult to perform the computations since they would require detailed analyses of grants and expenditures of individual cities. Although most state and federal grants come with "strings," many of these are only nominal constraints that do not restrict local resource allocation significantly. Grant restrictions are likely to be most important where grant funds make up a dominant share of the total funds allocated to a program (e.g., federal support of compensatory education) and where program characteristics are controlled in detail by the aid-granting agency (e.g., certain welfare programs).

Deductibility of Local Taxes from Federally Taxable Income

The ability of local governments to raise revenue is affected by the provision of the federal income tax code that makes local (and state) taxes deductible from federally taxable income. This provision may be interpreted either as a form of federal aid ("tax expenditure") on behalf of cities or as a device that augments the ability of local governments to levy taxes ("tax price reduction"). Regardless of the interpretation, deductibility must be included in computing local fiscal opportunities. Any change in the deductibility provision would constitute an important federal policy action affecting cities and other local jurisdictions. Moreover, although deductibility of local taxes is a national policy, it is not one that affects all cities uniformly. Because of the combined effects of intercity differences in per capita income and the progressivity of the federal income tax schedule, the deducti-

[6] The basic reason for the difference is that with lump-sum grants, the amount of aid may be interpreted as an exogenous variable determined by the grantor; whereas with matching grants, the matching rate is stipulated by the grantor but the grantee determines the amount of aid by setting the level of local spending for the aided function. For theoretical analyses of lump-sum and matching grants, see Inman (1971), Wilde (1968, 1969), and Barro (1972a, 1974a).

bility provision provides more aid to higher-income cities than to others.[7] Mathematically, the effect of deductibility on local fiscal opportunities is almost the same as the effect of matching grants to local governments. There appear to be no data showing the extent to which different cities or SMSAs benefit from the deductibility provision. However, it would be possible to perform such an analysis by combining IRS data with census data on the distribution of income in individual cities.

A factor closely related to deductibility of local taxes is the exemption of interest on municipal bonds from federal income taxation. This provides much the same kind of subsidy or effective price reduction for municipal borrowing as local tax deductibility provides for local taxation. The effect is probably more nonuniform among cities than that of tax deductibility, however, because the advantages of tax exempt municipal bonds accrue primarily to a narrow stratum of upper-income investors.

The Relationship between Revenue and Revenue Effort

If there were no matching grants and no deductibility of local taxes to consider, the relationship between local tax effort and per capita local revenue would be a very simple linear one. Total per capita revenue would equal lump-sum intergovernmental aid plus the product of local tax effort and the local per capita tax base. The increment in per capita revenue per unit of effort would depend only on the value of the tax base. Matching grants and local tax deductibility modify both the slope and the level of this linear relationship. The mathematical details are given in the appendix.

The effort-revenue relationship remains linear only as long as the size of the local revenue base is not affected by local fiscal decisions. In the short run, local government officials can take the size of their tax bases as given and assume that revenue yields will be proportional to the levied rates.[8] In the longer run, however, this assumption may be invalid. If households and business firms make their locational decisions partly on the basis of the tax rates imposed by each locality, the tax rate decisions of a jurisdiction will eventually affect the level of economic activity within its boundaries and, hence, the jurisdiction's tax base.[9] Higher taxes will drive out taxpayers and each successive increment in tax effort will yield less than proportional returns. Conceivably, a rate increase could even *reduce* tax receipts by inducing a sufficient number of firms and households to move. The feedback effect between tax rate and tax base has been examined theoretically (Shoup, 1975) but no empirical studies have been done. Therefore, the size of the feedback effect at prevailing levels of urban tax effort is unknown. This report concentrates on the short-run, linear revenue schedule facing a city. However, the issue of potential long-run feedback effects will be taken up in Section VI in the discussion of local responses to federal policy.

[7] These aspects of tax deductibility are examined in Section IV.

[8] A possible reason why tax yields may be less than proportional to tax rates even in the short run is that it may be more difficult to collect taxes as the rates increase—i.e., the incidence of tax delinquency and/or the collection cost may become greater.

[9] The locational effects of changes in tax rates (and levels of public services) are discussed in Sections VI and X of the *Population and Residential Location* report and in Section IV of the *Economic Development* report.

APPROACHES TO MEASUREMENT: EXPENDITURE DEMAND FACTORS

A given level of per capita revenue does not support the same level of public services in each urban area. Cities differ in the composition of the population to be served, the cost of providing services, the scope of their service responsibilities, and other demand-related factors. These factors, taken together, determine what may be termed the *relative needs for public services expenditures* of each city. This term is used with some trepidation because it is difficult to escape from the connotation of an absolute requirement that is almost always associated with "needs." The use of the word "relative" underscores that no such meaning is intended here. Relative need for public service expenditure is defined as a measure, or index, of the per capita amounts that different cities would have to spend to provide equal levels of service to their resident populations. *Equal levels of service* means a given amount of educational resources per public school child, a given amount of real cash assistance per welfare recipient, a given level of police and fire protection for each home and business, and so forth. The main factors that cause one city to have to spend more than another to provide the same level of services are the following:

1. *Demographic composition and other demand factors.* Other things being equal, cities with large numbers of persons with needs that are expensive to serve, children and the poor and dependent, will have to spend more per capita than other cities to provide equal levels of each municipal service. Similarly, intercity differences in demand-related factors other than population composition, such as population density, climate, and age of the housing stock, may generate differences in relative expenditure needs.
2. *Relative service costs.* Other things being equal, cities that must pay higher than average prices for the resources used in producing and delivering services (e.g., higher than average wages for public employees of a given quality) will have to spend more per capita than other cities to maintain a given service level. Also, costs of services may vary among cities because of differences in productivity as well as differences in resource prices.
3. *Scope of responsibility.* The wider the range of services that a jurisdiction, or set of jurisdictions, is charged with delivering, the more it will have to spend per capita to support given levels of the services within its domain.
4. *Other factors.* Other variables that may generate interurban differences in relative expenditure needs include the magnitude of inherited obligations (e.g., debt service and retirement payments), requirements for local outlays imposed by state or federal authorities, and obligations to provide services to nonresidents.

It is possible, at least conceptually, to construct indices of each of the three main factors listed above, such that the relative expenditure needs of a city can be expressed as the arithmetic product of the three indices. That is,

Relative expenditure need =
index of relative demand for public services
× index of relative cost of providing services
× index of scope of service responsibilities

The other factors must be taken into account in more complicated ways, exlained in the appendix. The theoretical and practical problems of measuring the three main "need" factors and constructing the indices are discussed below.

Measurement of Relative Demand for Local Services

A relative demand index measures the relative amount of *real* per capita spending that would be required in each city to provide a full array of local public services to each city resident. The value of the index varies among cities and over time primarily because of differences in the population to be served. The greater the proportion of above-average service consumers in a city's population, the greater the value of its relative demand index. It is helpful to think of this demand measure as consisting of a weighted population index in which the number of individuals in each of several demographic or socioeconomic categories is weighted by the relative cost of services for which members of that category are eligible. To illustrate with a simple example, suppose that it costs 50 percent more per capita to provide urban services to a poor person than to a member of the nonpoor population. If a city with no poor people at all is arbitrarily assigned a demand index vaue of 100, a city with 20 percent poor people would have an index of .80 $\times$ 100 + .20 $\times$ 150, or 110. Of course, to be useful, the demand index would have to take account of multiple attributes of the population that are related to service consumption. These include such characteristics as the age composition of the population (e.g., the number of elderly persons requiring social services), the proportion of the population attending public school, and the fraction of families that live in single-family homes.

Tables 3.4 and 3.5, respectively, illustrate the degree of intercity and intermetropolitan variation in three demand-related demographic variables: the proportion of a city's population of school age (ages 5–17), the proportion of the population that is elderly (65 or older), and the fraction of the population below the poverty line.[10] The range of variation in these attributes is considerable. Among cities, the proportion of the population of school age ranges from 16.5 percent in San Francisco to 28.6 percent in San Jose. Among SMSAs, the elderly population ranges from 6.0 percent in Washington, D.C., to 20.3 percent in Tampa. The poverty percentage varies from 6.2 in Anaheim-Santa Ana to 20.0 in New Orleans. Moreover, there are larger variations among the individual jurisdictions within metropolitan areas—especially between central cities and their suburbs.

The principal methodological problem in constructing the relative demand index is determining the weights to be applied to the population variables and the other demand factors. Two approaches to the index construction problem have been proposed in the literature. The first is a "direct imputation" method. The second is a statistical method based on regression analysis of the determinants of local government spending.

The Direct Imputation Method. The simpler method of constructing a service demand index is to attribute local expenditure categories to subgroups in the population (Barro et al., 1975, Appendix A). For example, public school outlays

[10] The poverty line is a *national* standard (the Orshansky index) that does not reflect geographical differences in the cost of living. If such differences were taken into account, the poverty rates would be significantly higher in northern and western SMSAs and significantly lower in the South.

Table 3.4

Intercity Variations in Selected Demographic Factors Related to the Demand for Local Public Services

City[a]	School-Age Population (percent of population ages 5-17)	Elderly Population (percent of population 65 years and over)	Incidence of Poverty (percent of persons in families with incomes below the poverty line)
Phoenix, AZ	26.9	8.7	11.6
Long Beach, CA	17.5	14.1	11.2
Los Angeles, CA	22.2	10.1	13.0
San Diego, CA	22.9	8.8	11.0
Oakland, CA	20.3	13.3	16.1
San Francisco, CA	16.5	14.0	13.6
San Jose, CA	28.6	5.6	8.6
Denver, CO	22.5	11.5	13.5
Washington, D.C.	21.9	9.4	16.2
Miami, FL	19.1	14.5	20.5
Atlanta, GA	23.7	9.2	20.0
Chicago, IL	23.8	10.6	14.3
Indianapolis, IN	27.1	8.8	9.5
New Orleans, LA	25.9	10.7	26.3
Baltimore, MD	25.2	10.6	18.1
Boston, MA	20.7	12.8	15.4
Detroit, MI	24.0	11.5	14.6
Minneapolis, MN	19.4	15.0	11.6
Kansas City, MO	24.0	11.9	12.6
St. Louis, MO	23.9	14.7	19.7
Newark, NJ	26.7	8.0	22.2
Buffalo, NY	22.8	13.3	14.8
New York, NY	20.6	12.1	14.6
Cincinnati, OH	22.7	13.0	17.1
Cleveland, OH	24.8	10.6	17.1
Columbus, OH	23.7	8.5	13.2
Portland, OR	20.9	14.9	12.6
Philadelphia, PA	23.2	11.7	15.1
Pittsburgh, PA	22.0	13.5	15.0
Dallas, TX	25.0	7.9	13.4
Houston, TX	26.6	6.5	13.9
Seattle, WA	19.1	13.1	10.0
Milwaukee, WI	24.2	11.0	11.2

SOURCE: Bureau of the Census, *County and City Data Book, 1972* (A Statistical Abstract Supplement), U.S. Government Printing Office, Washington, D.C., 1973.

[a]Includes cities among the 48 largest in the United States which are also part of an SMSA with population greater than one million.

Table 3.5

Intermetropolitan Variations in Selected Demographic Factors Related to the Demand for Local Public Services

Metropolitan Area (SMSA)[a]	School-Age Population (percent of population ages 5-17)	Elderly Population (percent of population 65 years and over)	Incidence of Poverty (percent of persons in families with incomes below the poverty line)
Phoenix, AZ	27.1	9.4	11.7
Anaheim-Santa Ana, CA	28.0	6.9	6.4
Los Angeles-Long Beach, CA	24.0	9.3	10.7
Riverside-San Bernardino-Ontario, CA	26.7	11.0	12.3
San Diego, CA	24.1	8.8	10.0
San Francisco-Oakland, CA	23.0	9.6	9.7
San Jose, CA	27.5	6.0	7.4
Denver, CO	26.8	7.8	9.5
Washington, D.C. - VA - MD	25.7	6.0	8.1
Miami, FL	22.6	13.7	14.0
Tampa-St. Petersburg, FL	21.5	20.3	14.3
Atlanta, GA	26.1	6.5	11.6
Chicago, IL	26.0	8.9	9.1
Indianapolis, IN	27.6	8.6	8.7
New Orleans, LA	27.6	8.4	20.0
Baltimore, MD	26.2	8.4	11.1
Boston, MA	24.2	11.3	8.3
Detroit, MI	27.5	8.1	8.4
Minneapolis-St. Paul, MN	27.1	8.7	6.5
Kansas City, MO - KS	26.5	9.4	9.6
St. Louis, MO	27.0	9.9	10.8
Newark, NJ	24.7	9.9	9.0
Buffalo, NY	26.2	10.0	9.0
New York, NY	22.9	10.9	11.6
Cincinnati, OH	27.1	9.7	3.2
Cleveland, OH	25.9	9.2	8.9
Columbus, OH	25.7	7.8	10.2
Portland, OR	25.1	10.9	9.6
Philadelphia, PA	25.4	9.7	9.8
Pittsburgh, PA	25.0	10.7	9.4
Dallas, TX	26.2	7.3	11.1
Houston, TX	27.7	6.1	12.5
Seattle-Everett, WA	25.7	8.5	7.4
Milwaukee, WI	26.7	9.6	7.8

SOURCE: Bureau of the Census, *County and City Data Book, 1972* (A Statistical Abstract Supplement), U.S. Government Printing Office, Washington, D.C., 1973.

[a]Includes all SMSAs with population greater than one million.

are attributed to school children, welfare expenditures to poor persons, and so forth. The average amount spent per service recipient can then be used as the weight for that population subgroup. This method has two shortcomings: First, certain expenditure categories are difficult to allocate to population subgroups. For example, it is not clear who should be considered the beneficiaries of expenditures for highways. Second, some expenditures benefit many groups in the population, but to different degrees (e.g., outlays for police and fire protection). It would be unreasonable either to attribute those outlays wholly to particular subgroups or to claim that they apply uniformly to the population as a whole. Fortunately, the functions that account for the largest fractions of local spending—education and welfare—can be assigned to categories of service beneficiaries—school children and poor people, respectively—with relatively little ambiguity.[11] A need index that takes account only of variations in percentages of the population in school and below the poverty line would probably capture a large part of the intermetropolitan variation in demands for local services. However, this is not very helpful when the unit of analysis is the city government rather than the local government sector as a whole, because education and welfare are only minor components of the budgets of most municipal governments. Therefore, the direct imputation method may be useful for studying variations in service demand among the public sectors of metropolitan areas, but it is of little value for analyzing variations among municipalities.

Table 3.6 illustrates how different the composition of municipal government expenditures is from that of the whole local public sector in urban areas. Note, in particular, that education makes up 43 percent of total current spending of the whole urban sector but only 17 percent of the spending of municipal governments in metropolitan areas. Functions that account for a substantial portion of municipal spending—highways, police, fire, health and hospitals, and sanitation—are much more difficult to assign to particular population subgroups than are public education and welfare. The differences between the expenditure share figures for cities and for metropolitan areas strongly suggest that different indices of service demand would be appropriate for analyzing the fiscal conditions of the two types of urban units.

The Regression Method. The statistically based method of constructing a relative demand index does not depend on a priori judgments about the degree to which different population groups benefit from, or consume, local services. Instead, public service expenditures are regressed on demographic variables and other demand factors, and the contribution of each local characteristic is inferred from the statistical results. Different versions of this method have been demonstrated by Musgrave and Polinsky (1970), Auten (1974), and Barro et al. (1975, Appendix A).

The regression method has several advantages over the direct imputation method. First, the statistical method can take account of urban characteristics

[11] The lack of ambiguity in defining the consumers of education and welfare services is only relative. Problems in defining the consumers of public schooling include (1) treatment of private school attendees, (2) treatment of school drop-outs and others in the standard age bracket who do not attend school, and (3) methods of adjusting for differences in educational "needs" among different segments of the school-age population. Problems in defining the consumers of welfare and related services aimed at the poor include the problem of geographical cost variations (fn 10), the problem of allowing for differences in family structure and household composition, problems arising from interstate differentials in eligibility for participation in programs, and problems of quantifying differences in the degree of poverty, or in the income distribution of the population below the poverty line.

Table 3.6

Per Capita Expenditure by Function: All Local Governments in Metropolitan Areas and Municipal Governments Only, 1971-72

Expenditure Category	All Local Governments in Metropolitan Areas		Municipal Governments in Metropolitan Areas	
	Per Capita Amount (dollars)	Percent of Direct General Expenditure	Per Capita Amount (dollars)	Percent of Direct General Expenditure
Direct General Expenditure	577	100.0	304	100.0
Education	249	43.2	52	17.1
Local Schools	234	40.6	47	15.5
Higher Education	15	2.6	5	1.6
Highways	28	4.9	21	6.9
Public Welfare	54	9.4	29	9.5
Hospitals	29	5.0	18	5.9
Health	9	1.6	6	2.0
Police Protection	31	5.4	34	11.2
Fire Protection	16	2.8	19	6.3
Sewerage	19	3.3	15	4.9
Sanitation	10	1.7	11	3.6
Parks and Recreation	15	2.6	14	4.6
Natural Resources	3	0.5	--	--
Housing and Urban Renewal	16	2.8	13	4.3
Airports	8	1.4	5	1.6
Water Transport and Terminals	2	0.3	2	0.7
Parking Facilities	1	0.2	1	0.3
Corrections	5	0.9	2	0.7
Libraries	4	0.7	4	1.3
Financial Administration	7	1.2	5	1.6
General Control	13	2.3	8	2.6
General Public Buildings	6	1.0	5	1.6
Interest on General Debt	22	3.8	13	4.3
Other and Unallocable	30	5.2	28	9.2

SOURCE: Bureau of the Census, *1972 Census of Governments*, Vol. 5, *Local Government in Metropolitan Areas*, Washington, D.C., 1974.

other than population composition that may affect public service demand, such as population density, age of the existing housing stock, topography, and climate. Second, the regression method can, in principle, allow for service demands generated by business firms, as well as by households. Third, the regression approach is flexible in that it can be applied either to aggregate expenditure data or detailed data on individual functions, and that it can allow for interactions both among the expenditure categories and the various local demand factors. Offsetting these advantages are the methodological and practical problems of carrying out the statistical computations. The regression method has thus been demonstrated only for states (Barro et al., 1975) and for county areas within a single state (Auten, 1974), but not for metropolitan areas or cities.

Even if all methodological problems were overcome, construction of refined measures of relative demands for services would be severely impeded by the absence of essential data. Information on many of the important demand-related

attributes of the population is available for cities only from the decennial censuses. For years between censuses, it is necessary to "make do" with much cruder and less complete data. Income and population estimates are available for metropolitan areas for noncensus years but not for cities or other smaller units. The Census Bureau's efforts to provide updated estimates for the general revenue-sharing program may result in some improvement in the data situation.

Measurement of the Relative Cost of Services

Cost variations should be taken into account in comparing fiscal opportunities among cities because the purchasing power of the local revenue dollar varies geographically and over time. No indices of geographical variation in municipal or local government costs are published by government agencies and none, apparently, have been presented in the research literature. There have been several studies of cost changes over time. Bradford, Malt, and Oates (1969) attempt to determine how much of the post-World War II increase in per capita expenditures of local government is attributable to increases in prices of inputs, as opposed to changes in the quantity or quality of inputs purchased. In doing so, they make use of a variety of rough cost indices, including various indices of wages of local government employees. Walzer (1970) presents more detailed price indices, developed from data on expenditure by function for a sample of Illinois cities. Unfortunately, he makes no attempt to adjust his wage and salary indices, which dominate the overall cost of service index, for changes in the mix or quality of municipal employees. Greytak, Gustely, and Dinkelmeyer (1974) present a detailed, function-by-function analysis of changes in service costs in New York City between 1965 and 1972, based on a method of constructing cost indices presented in Gustely (1973). Their study makes the important contribution of differentiating between price increases due to general inflation and those that represent growth in the costs of local public services relative to costs in the private sector. Lately, because of wide interest in issues of school finance, a number of theoretical and empirical papers have appeared on geographical cost variations in public schooling (Chambers, 1975; Grubb, 1976; Brazer, 1974). The methodologies used in this work can be applied directly to investigations of costs of other local services. The approaches proposed in the school finance literature, which are described below, are more sophisticated than any that have been used in other studies of local government costs.

The most important resource input of the local public sector is services of public employees. Therefore, the most important price is the local public employees' wage level. As Table 3.7 shows, there are substantial variations among metropolitan areas in the average salary paid per public employee. The range of variation among the selected large SMSAs shown in the table is almost 1.8 to 1. Much of that variation may reflect differences in the mix of services provided (some services require more expensive staff than others) and differences in the quality of workers. But if a significant fraction of the variation reflects true price differentials, it would be important to take that into account in making interarea comparisons.

There are several approaches, varying greatly in sophistication, to comparing wage levels among places and over time. The simplest is to base the comparisons on salaries paid to local public employees in specific, well-defined job classifications. This avoids one of the major problems in constructing a wage-index—the problem of variation in staff quality. For example, in studies of school costs, the salary of

Table 3.7

Variations in Earnings of Local Government Employees Among Large Metropolitan Areas, 1972

Metropolitan Area (SMSA)[a]	Average Monthly Earnings of Local Government Employees, Excluding Teachers, October 1972 (dollars)	Index of Average Monthly Earnings (base = average for all SMSAs)
Phoenix, AZ	745	99
Anaheim, CA	901	120
Los Angeles, CA	923	123
Riverside, CA	797	106
San Diego, CA	851	113
San Francisco, CA	952	126
San Jose, CA	904	95
Denver, CO	680	90
Washington, D.C.	770	102
Miami, FL	736	98
Tampa, FL	594	79
Atlanta, GA	610	81
Chicago, IL	866	115
Indianapolis, IN	602	80
New Orleans, LA	535	71
Baltimore, MD	680	90
Boston, MA	817	109
Detroit, MI	917	122
Minneapolis, MN	809	107
Kansas City, MO - KS	683	91
St. Louis, MO - IL	679	90
Newark, NJ	797	106
Buffalo, NY	763	101
New York City-Nassau-Suffolk, NY	938	125
Cincinnati, OH - KY - IN	630	84
Cleveland, OH	733	97
Columbus, OH	658	87
Portland, OR - WA	790	105
Philadelphia, PA	804	107
Pittsburgh, PA	683	91
Dallas, TX	616	82
Houston, TX	616	82
Seattle, WA	819	109
Milwaukee, WI	846	112

SOURCE: Bureau of the Census, *1972 Census of Governments*, Vol. 5, *Local Government in Metropolitan Areas*, Washington, D.C., 1974.

[a]Includes all SMSAs with population greater than one million.

a starting teacher with minimum qualification (a B.A. degree and no experience) has been suggested as the appropriate reference datum. However, even this seemingly straightforward approach has problems: There are reasons to believe (1) that there may be significant quality variations within the category of starting teachers, and (2) that observed salary differentials may reflect demand factors (local school district preferences) as well as differences in the supply of teachers to different localities. In principle, only cost differences attributable to supply factors should be taken into account in constructing a cost index.[12] Also, it would be difficult to extend the "starting teacher" approach to the remainder of the local public sector because data are not readily available on wages paid to well-defined classes of local government workers.

An alternative method is to base the public employees' salary index on wages paid to some standard category of workers in the private sector in each locality. For example, an index of public sector wage costs might be constructed from census or BLS data on salaries of clerical workers, professional and technical workers, and managers in different labor market areas. The rationale for this is the "opportunity wage" theory, that because individual workers are free to move between the public and private sectors, public employers must offer wages that are competitive with those offered by private employers to workers of comparable skills and quality. The advantage of the private sector wage index is that it circumvents having to measure variations in the quality and skill mix of public employees. Potential problems associated with this approach include the difficulty of selecting comparable private sector occupational categories and determining appropriate weights, the possibility that the quality of private sector workers varies among places and over time, and the existence of special attributes of public sector employment (e.g., civil service job protection) that make comparisons dubious. Nevertheless, this may be the most promising method to use in interarea cost comparisons pending development of more elaborate econometric methods.

Another alternative is to base wage and salary indices on BLS cost of living data, as was done in the Greytak, Gustely, and Dinkelmeyer study cited above. The rationale is that interarea wage and cost of living differentials will be correlated because labor and capital movements tend to equalize real wages in different geographical areas. The problems with this approach are that (1) there are many supply and demand factors other than cost of living differences that may lead to wage differences, and (2) the tendency toward geographical equilibration is a long-term one, and does not imply the absence of cross-sectional variations in real wages. The use of cost of living data to represent wage costs seems to be inferior to the opportunity wage method described above.

The most sophisticated approach, which has been proposed both in the school finance literature (Chambers, 1975; Grubb, 1976) and in a study of the allocation of general revenue sharing funds among states (Barro et al., 1975), is to develop a

[12] The rationale for the distinction is that the supply factors are sources of salary variation not under control of the local government (e.g., high salaries in the local private sector, which make it necessary to offer high salaries to attract public employees), whereas demand factors reflect the voluntary behavior of the local government (e.g., high salary offers intended to attract high quality personnel. However, the distinction is not always clear-cut. For instance, where there are civil service tenure and seniority systems, a local government may be forced to incur the costs of employing experienced, higher-paid staff, even though, given the choice, it might prefer to higher lower-cost, younger workers. In that situation, experience becomes a supply factor whereas in other circumstances it might be considered a dimension of staff "quality" demanded by the local government.

wage index from an econometric model of wage determination in the local public sector. In this type of model, observed wages are related statistically to factors that affect both the demand and supply for public employees. Demand factors include community income or wealth, number of service consumers, and indicators of "tastes" for local services. Supply factors include prevailing wages in alternative occupations in each community, indicators of the attractiveness of each jurisdiction to workers, and variables related to unionization. The cost index is constructed by using the statistical model to estimate the price differences that would exist if only the supply factors were operative—i.e., the method controls for demand factors associated with variations in observed wages. This is the most promising long-term approach to developing theoretically sound geographical cost indices. However, it cannot yet be used for policy purposes because some of the technical problems involved in developing the wage determination models have not yet been resolved, and there are some serious data deficiencies.

The problems associated with nonwage components of service costs are minor in comparison to the problem of developing a wage index. The methodology required to deal with nonlabor inputs, such as supplies, equipment, and fuel and power is identical to that needed to develop standard price indices, such as the consumer price index (CPI). The main problem in constructing the nonlabor portion of the index is inadequate data on the mix of inputs used in different cities and at different times. However, labor costs are such a high fraction of the cost of providing local public services (except for local transfer payment programs, which require separate consideration)[13] that relatively crude data on the nonwage components would suffice for most analytical purposes.

Measurement of the Scope of Local Service Responsibilities

There are large variations among urban areas in the range of services provided by city governments and by the local public sector as a whole. In New York, the city government supports elementary and secondary education, higher education, welfare, and a system of public hospitals in addition to the more traditional set of municipal services. A more common arrangement is that some of these services are provided by separate, geographically overlapping local jurisdictions. In most parts of the country, public schooling, the most expensive local service, is provided by independent local school districts. In many states, such important functions as highways and public health services, are supported by county governments. Welfare services are provided directly by state governments in some states and by county agencies in others. Gramlich (1975) has shown in his analysis of finances in New York and other cities that differences in responsibility for functions other than the standard municipal services account for a large portion of the intercity variation in the fiscal positions of municipal governments.

Tables 3.8 and 3.9 illustrate the variations that exist in the shares of financial responsibility borne by different levels of government. Table 3.8 shows the shares of total state and local government expenditure that are accounted for by the

[13] Assuming that the objective of transfer payment programs is to augment the real standards of living of the beneficiaries, the appropriate cost index to apply to the transfer component is one reflecting the cost of living in each area rather than the cost of providing public services. However, it is difficult to reconcile this notion of the program goal with federal welfare programs that do not take any cost differentials into account in distributing grant funds among the states.

Table 3.8

Percentage Shares of State and Local Direct General Expenditure, by Type of Government, for States, 1971-72

State	Direct General Expenditure as a Percentage of Total Direct General Expenditure of State and Local Governments				Direct General Expenditure as a Percentage of Total Direct General Expenditure of All Types of Local Governments				
	State	All Local Governments	General-Purpose Local Governments	Municipalities	Counties	Municipalities	Townships	School Districts	Special Districts
Alabama	49.8	50.2	23.0	15.7	14.6	31.3	--	44.3	9.9
Alaska	65.6	34.4	34.4	15.0	56.5	43.5	--	--	--
Arizona	38.2	61.8	26.7	16.0	17.3	25.9	--	53.4	3.4
Arkansas	51.0	49.0	19.6	10.9	17.7	22.3	--	55.1	4.9
California	28.6	71.4	40.3	14.6	35.9	20.5	--	39.4	4.2
Colorado	39.2	60.8	28.5	18.2	16.8	30.0	--	49.4	3.9
Connecticut	42.9	57.1	54.1	25.6	--	44.9	49.9	2.1	3.1
Delaware	53.4	46.6	18.8	12.1	14.4	25.9	--	54.5	5.2
District of Columbia	--	100.0	97.6	97.6	--	97.6	--	--	2.4
Florida	34.1	65.9	26.6	14.3	18.7	21.7	--	52.4	7.3
Georgia	42.5	57.5	20.9	12.3	15.0	21.4	--	45.2	18.5
Hawaii	79.4	20.6	20.6	15.4	25.1	74.9	--	--	--
Idaho	50.4	49.6	19.3	8.5	21.8	17.1	--	52.2	8.8
Illinois	39.5	60.5	25.7	16.7	13.1	27.6	1.7	49.3	8.2
Indiana	34.7	65.3	28.0	15.0	19.0	22.9	1.0	50.1	7.1
Iowa	37.6	62.4	26.9	13.7	21.2	21.9	--	56.8	0.1
Kansas	34.5	65.5	31.6	15.5	24.0	23.7	0.6	49.6	2.2
Kentucky	59.8	40.2	15.3	10.5	12.1	26.0	--	61.2	0.6
Louisiana	48.5	51.5	20.8	11.2	18.7	21.7	--	53.4	6.2
Maine	52.2	47.8	36.0	16.6	2.3	34.7	38.4	21.1	3.4
Maryland	34.8	65.2	62.5	22.8	60.9	34.9	--	--	4.2
Massachusetts	45.4	54.6	51.8	27.6	3.3	50.5	41.0	3.2	2.0
Michigan	37.0	63.0	30.4	16.9	19.4	26.8	2.1	50.4	1.3
Minnesota	29.8	70.2	34.5	15.0	26.7	21.4	1.0	45.0	5.9
Mississippi	48.3	51.7	24.1	9.8	27.8	18.9	--	50.2	3.1
Missouri	38.0	62.0	26.7	19.8	10.9	31.9	0.3	51.8	5.2
Montana	51.0	49.0	19.7	7.6	24.5	15.6	--	57.4	2.5
Nebraska	39.6	60.4	27.6	15.3	19.9	25.4	0.4	50.9	3.5
Nevada	35.5	64.5	35.0	13.0	34.1	20.1	--	40.0	5.8
New Hampshire	47.4	52.6	31.4	18.9	5.7	35.8	18.2	36.0	4.4
New Jersey	30.5	69.5	43.0	21.1	23.7	30.3	7.9	31.4	6.6
New Mexico	50.0	50.0	20.0	14.2	11.5	28.4	--	59.1	0.9
New York	22.9	77.1	59.1	45.2	14.7	58.6	3.4	20.0	3.2
North Carolina	40.3	59.7	56.8	12.1	74.9	20.2	--	--	4.8
North Dakota	50.5	49.5	20.2	10.3	17.7	20.7	2.3	55.0	4.3
Ohio	34.9	65.1	32.5	19.2	18.6	29.5	1.8	46.5	3.5
Oklahoma	51.8	48.2	22.3	15.2	14.8	31.5	--	51.3	2.4
Oregon	42.9	57.1	20.2	10.3	17.2	18.1	--	56.9	7.8
Pennsylvania	44.2	55.8	21.2	13.5	9.1	24.1	4.7	50.5	11.6
Rhode Island	53.6	46.4	44.3	28.3	--	61.0	34.4	1.1	3.5
South Carolina	49.0	51.0	18.6	6.9	22.8	13.6	--	58.3	5.3
South Dakota	51.2	48.8	19.5	10.0	17.8	20.5	1.7	58.6	1.4
Tennessee	41.4	58.6	53.3	29.4	41.1	50.2	--	0.6	8.0
Texas	39.1	60.9	21.4	13.5	9.8	25.4	--	54.8	9.9
Utah	54.6	45.4	15.0	8.3	14.8	18.2	--	61.7	3.3
Vermont	61.9	38.1	12.6	5.0	0.2	11.2	19.7	65.8	1.0
Virginia	40.1	59.9	58.3	29.4	48.2	49.1	--	--	2.8
Washington	43.5	56.5	20.8	12.4	14.9	21.9	--	47.7	15.5
West Virginia	61.7	38.3	11.3	7.5	10.1	19.5	--	67.7	2.7
Wisconsin	33.2	66.8	44.8	23.7	27.5	35.4	4.2	30.7	2.0
Wyoming	50.8	49.2	17.9	6.9	22.3	14.1	--	58.4	5.3

SOURCE: Bureau of the Census, Census of Governments, 1972, Vol. 6#, Government Finances, No. 5, Compendium of Government Finances, Washington, D.C., 1974 (Tables 37 and 48).

Table 3.9

Per Capita Expenditures for Education, Welfare, and Other Functions of the Largest U.S. Cities, 1973-74
(Dollars)

City	Per Capita General Expenditure			
	Total	Education	Public Welfare	All Other
Baltimore	897.42	244.33	156.05	497.04
Boston	858.03	229.41	10.84	617.78
Chicago	299.01	6.36	4.18	288.47
Cleveland	333.12	0.12	2.65	330.35
Columbus	236.51	--	0.01	236.50
Dallas	265.98	--	--	265.98
Denver	508.15	0.57	89.57	418.01
Detroit	395.38	4.87	2.63	387.88
Honolulu	269.13	--	--	269.13
Houston	168.30	1.44	0.03	166.83
Indianapolis	312.76	4.37	43.99	264.40
Jacksonville	277.27	0.38	3.83	273.06
Los Angeles	255.57	--	0.23	255.34
Memphis	381.21	176.60	0.60	204.01
Milwaukee	287.85	0.46	--	287.39
New Orleans	296.60	3.98	6.24	286.38
New York	1,381.58	334.22	338.37	708.99
Philadelphia	454.32	4.37	19.02	430.93
Phoenix	255.21	1.42	0.30	253.49
St. Louis	371.31	1.52	4.70	365.09
San Antonio	137.59	--	1.57	136.02
San Diego	201.40	--	0.03	201.37
San Francisco	762.72	1.88	201.80	559.04
San Jose	188.90	--	--	188.90
Seattle	362.34	--	--	362.34
Washington	1,768.68	367.01	276.72	1,124.95
48 Largest Cities	580.33	98.26	82.96	399.11

SOURCE: Bureau of the Census, *City Government Finances in 1973-74*, Washington, D.C., 1975.

different levels of government in each state. Two kinds of variation in the scope of local responsibility are readily apparent: First, the state government provides a much larger part of total state-local services in some states than in others. The state share of total direct spending varies from 22.9 percent in New York to 79.4 percent in Hawaii. Second, city governments assume a much large part of the local sector's financial responsibilities in some states than in others. The city government share of total local spending varies (excluding the District of Columbia) from 13.2 percent in Vermont to 74.9 percent in Hawaii. Among the 50 states, there is more than a 5 to 1 range of variation in the fraction of state and local spending accounted for by general-purpose local governments and a 9 to 1 range in the fraction accounted for by municipal governments. Interstate comparisons of city budgets would be meaningless if adjustments were not made for these gross differences in the scope of service responsibilities.

Table 3.9 presents data on the composition of per capita expenditure of individual large cities. The table shows that there are major intercity differences in the assignment of responsibilities for the two most expensive local services, education and welfare. Most of the large cities represented in the table spend minimal amounts for these two functions. The responsibilities are borne by state or county authorities. In 5 of the 26 cities, however, the municipal budget includes education. In six cities, it includes significant amounts for welfare. Many other differences in functional responsibilities (e.g., for hospitals, institutions of higher education, and rapid transit systems) are not shown in the table, but should be taken into account in comparing the cities' fiscal conditions.

A rough index of the scope of service responsibility of a local government can be obtained by computing the ratio of the expenditure of that government to the combined expenditure of all levels of state and local government serving the same constituents. If the unit of analysis is the municipal government, it is necessary to determine how much is spent by overlying governments—the state and county, and possibly school districts and other special-purpose districts—to provide services to city residents. If the unit of analysis is the whole set of local governments serving a metropolitan area, the computation is simpler (except for metropolitan areas that cross state boundaries). All that is necessary is to compare the service expenditures of the local sector with direct spending by the state. There are two possible bases to use in computing a responsibility index. One is the average scope of responsibility of all cities or all metropolitan areas. The other is the maximum possible scope of responsibility, 100 percent. That is, a hypothetical municipal government that delivered the full range of public services to its citizens (ignoring services provided directly by the federal government) would be said to have a responsibility index of 1.0. No local government in the United States would be assigned that score (except, possibly, Washington, D.C.) because all state governments provide some public services. The data in Table 3.8 imply that typical values of responsibility indices would be on the order of .20 to .40 for cities and .30 to .70 for the whole local sector.

The main conceptual flaw in a responsibility index based on direct expenditure comparisons is that this method of measurement tends to confound differences in responsibility with differences in revenue effort (Barro et al. 1975). That is, one city government may account for a larger fraction of total state and local spending for its residents than another, either because the first city provides a broader range of services or because it performs the same services more intensively and at greater

expense. To deal with this problem, it would be necessary to develop a more elaborate responsility index based on information about each city's responsibilities for specific functions. A possible approach to developing such an index is to compute a weighted sum for each city, in which the weights are average, or standard, levels of per capita spending for each function and in which each standard expenditure amount is included in the sum only if the city performs that function. This type of index has not yet been demonstrated, and it is likely that problems would be encountered in deciding on the appropriate standard weights to use in constructing one. For the time being, little more can be done than to rely on expenditure ratios as rough measures of the relative scope of local government fiscal responsibilities.

Service Spillovers

If a local government is required to pay for services that are consumed by nonresidents, the characteristics of the local jurisdiction itself will not reflect all sources of service demand. Service spillovers are likely to exist where nonresident commuters benefit from such municipal services as police and fire protection, highways, public transportation, sanitation, and parks and recreation. The spillover problem has been most extensively discussed in the literature on "suburban-central city exploitation." However, the direction of spillovers is not always from the central city to suburban residents. More complicated patterns of both service and tax spillovers are likely to exist in metropolitan areas (Greene, Neenan, and Scott, 1974).

The problem of measuring service spillovers is more complicated than that of measuring tax spillovers. In addition to identifying the beneficiaries of services (which is analogous to identifying the bearers of tax burdens), it is also necessary to determine the value of the benefits and the extra costs that spillovers impose on the service-providing jurisdiction. The requires information on the marginal cost of services provided to nonresidents. Various methods have been proposed for dealing with this problem (Greene, Neenan, and Scott, 1974; Smith, 1972), but each depends strongly on specific assumptions about service costs and incidence and each requires laborious computations using detailed data on individual jurisdictions. No method is now available that would permit estimation of the rate of service spillovers from each member of a cross-sectional sample of cities.

Inherited Obligations

A final factor to be considered on the service demand side of the urban fiscal equation is the magnitude of inherited obligations. One major component of this inheritance, the requirement to service municipal debt, poses no special measurement problems. The amount of debt service per capita can be determined directly from budgetary documents. The other major inherited obligation, the requirement to finance employee retirement plans, creates more serious problems. Most municipal pension funds operate on a currently funded, "pay as you go" basis, rather than as fully funded, actuarially based plans. Therefore, obligations are not reflected in city budgets as they are accrued, but only later when payments must actually be made. Recently much attention has been drawn to the rising cost of municipal pension plans and to the potential financial problems that growing retirement obligations may create for cities in the future (ACIR, 1973; Bahl and Jump, 1974;

Peterson, 1976). These obligations are becoming such a major item in some cities' budgets that they can no longer be ignored in making intercity comparisons or in projecting municipal spending over time. Satisfactory methods of measuring accumulating pension fund obligations in a consistent manner have yet to be developed.

SUMMARY OF CURRENT AND PROSPECTIVE MEASUREMENT CAPABILITIES

This subsection has addressed the problem of quantifying five major factors that affect urban fiscal opportunities and several minor ones. The major factors include two components of the city's revenue-raising ability—the local revenue base and the availability of external aid—and three factors that jointly determine the city's relative need for public service spending—relative demand for services, relative service cost, and scope of service responsibility. Conceptual and practical problems of varying severity arise in attempting to measure all five factors. Nevertheless, in each instance the capability currently exists to construct at least a crude measure of each factor, and methodological issues have been sufficiently explored to provide guidelines for better measurement in the future. The state of the measurement art may be summarized as follows:

Revenue base. Data on per capita income by city and SMSA provide ready-made measures of local fiscal capacity. The SMSA data are updated regularly by the Commerce Department. Income data for cities are normally available only from the decennial censuses; however, the Census Bureau's efforts to update income data for use in the general revenue-sharing program may provide data for intervening years. The methodology exists for constructing more refined measures of fiscal capacity, based on statistically weighted sums of individual local tax bases. These techniques have been applied to states and counties, but not yet to cities or metropolitan areas.

Availability of external aid. Data on amounts of external aid to all types of local governments are readily available. Measurement problems arise in separating lump-sum and matching grants and in quantifying the effects of grant constraints. These problems have been analyzed theoretically and solutions have been demonstrated. No one, as yet, has attempted to apply these solutions to a cross-section of cities or metropolitan areas.

Relative demands for public services. Methods for constructing statistically based indices of relative service demands or service "needs" have been developed theoretically and demonstrated in preliminary form. It would require a substantial effort to refine the methods and to use them to construct city or SMSA indices. There is also a serious data problem inasmuch as relevant need indicators are measured only by the decennial censuses. It would not be difficult to construct relatively crude "direct imputation" indices that take account of intercity variations in numbers of poor persons and school children, and possibly a few other characteristics. This appears to be the only feasible approach in the immediate future.

Relative service costs. Theoretical methods have been developed for constructing indices of public employee wages, based on statistical models of wage determination. However, these methods have not been demonstrated empirically and the

work thus far has been limited to costs of public schooling. Relatively crude indices can be constructed from data on salaries paid to standard categories of public workers. An alternative approach is to use data on private sector opportunity wages. The best short-run approach seems to be to use one or the other of these relative salary measures in combination with CPI-type data on nonlabor inputs.

Scope of service responsibility. A crude measure of scope of service responsibility can be constructed from data on expenditures by the different levels of governments within each state. Methods have been suggested for constructing a more refined index from information on specific functional responsibilities but the feasibility of this method has not yet been demonstrated.

Other factors. Some difficult conceptual and empirical problems arise in attempting to quantify *service and tax spillovers* among jurisdictions. Methods of quantification have been developed and demonstrated, but they have had to be applied painstakingly to detailed data on individual cities. No one has presented more aggregative methods suitable for application to cross-sections of cities. The effect on fiscal opportunities of *federal income tax deductibility of local taxes* is well understood, but no one has presented computations of the effective marginal rates of income tax reduction in different areas. Therefore, the information needed to take account of tax deductibility is not available. The effect of *inherited obligations* on city finance is easy to deal with in principle, but it would be difficult to do the computations consistently for a cross-section of cities. Because of recent interest in pension fund issues, improved data are likely to become available on this subject.

THE FISCAL OPPORTUNITY SCHEDULE OF A CITY

The foundation has now been laid to return to the questions raised at the beginning of this section: How can the fiscal condition of a city be measured? How can fiscal conditions in different cities or in the same city at different times be compared? The approach proposed here is based on the concept of the *fiscal opportunity schedule.* This subsection defines and illustrates the concept. The following subsection explains how it can be used to construct numerical indices of urban fiscal condition.

Definition

The fiscal opportunity schedule is a relationship between a city's fiscal effort and the *ratio* of its revenue to its relative expenditure needs. As was explained earlier, the per capita revenue available to a city can be expressed, in the short run, as a linear function of revenue effort. The per capita amount available to be expended, however, is not itself a good indicator of the degree to which a local government is satisfying the service demands or "needs" of its constituents. A given level of per capita outlay can represent quite different degrees of public sector adequacy in jurisdictions that have different types of constituencies, face different service costs, or have broader and narrower spans of service responsibility. A more meaningful measure of the adequacy of public service provision can be obtained by deflating the city's per capita spending by its index of relative need for public service expenditure. The latter was defined earlier in this section as a composite index combining the factors of relative demand, relative cost, and scope of responsibility. The result-

ing linear relationship between the revenue effort exerted by a city and its *expenditure-to-needs ratio* constitutes the fiscal opportunity schedule.

Mathematical Statement

A complete mathematical statement of the fiscal opportunity schedule is fairly complicated because it has to reflect the many factors that affect local revenue-raising ability and relative needs for public spending. In addition to the five main factors—the revenue base, amount of external aid, relative service demands, relative costs, and scope of responsibilities—there are such supplementary factors as service and tax spillovers, local tax deductibility, state and federal matching grants, and inherited obligations. A detailed mathematical statement appears in the appendix. The following simplified statement, which takes into account only the five main factors, is intended to make the concept of the fiscal opportunity schedule more concrete and to facilitate the discussion of properties of the schedule and potential policy applications.

The notation given below is used for compactness:

EXP = per capita current expenditure,
EFF = revenue effort (the ratio of local revenue from own sources to revenue base),
BASE = the per capita revenue base,
AID = per capita financial aid from state and federal governments,
DEM = index of relative demand for local public services,
COST = index of relative cost of local services,
RESP = index of the scope of service responsibilities,
NEED = index of relative need for public service expenditures.

By definition, per capita expenditure is related to local revenue effort according to the budget constraint equation,

$$\text{EXP} = \text{AID} + \text{EFF} \times \text{BASE} .$$

The composite index of relative need for public expenditure is related to the three component indices by

$$\text{NEED} = \text{DEM} \times \text{COST} \times \text{RESP} .$$

Therefore, the ratio of per capita expenditure to relative need for expenditure is expressed by

$$\frac{\text{EXP}}{\text{NEED}} = \frac{\text{AID} + \text{EFF} \times \text{BASE}}{\text{DEM} \times \text{COST} \times \text{RESP}} .$$

This equation expresses the linear relationship between the expenditure-to-needs ratio, EXP/NEED, and revenue effort, EFF.

The rate at which the expenditure-to-needs ratio increases with each increment in revenue effort—the *slope* of the fiscal opportunity schedule—varies among cities and over time. Other things being equal, the steepness of the schedule increases

with the per capita revenue base of the city (BASE) and it decreases with relative service demand (DEM), relative service costs (COST), and scope of service responsibilities (RESP). A city with a large tax base, a small proportion of high-service consumers in its population, low prices of public service inputs, or a limited range of responsibilities is able to provide a greater increment in EXP/NEED for each one percent increment in EFF than a city with less favorable characteristics. The *level* of a city's fiscal opportunity schedule is affected by the availability of external aid (AID) as well as by the three indices in the denominator of the above expression. If two cities have the same per capita revenue base and the same value of the expenditure need index but one city receives more state and federal grant money than the other, the former city obviously has a higher fiscal opportunity schedule and a more favorable set of financial alternatives.

Absolute and Incremental Fiscal Opportunity Schedules

The fiscal opportunity schedule defined above may be referred to as the *absolute* opportunity schedule to distinguish it from a second type of schedule, to be described below. The use of the absolute schedule for comparing fiscal conditions of different cities can be illustrated graphically. Figure 3.2 illustrates the absolute opportunity schedules of four hypothetical cities. Revenue effort (EFF) is measured along the horizontal axis, and the ratio of per capita expenditures to relative expenditure needs (EXP/NEED) is measured vertically. The intercept of the fiscal opportunity schedule with the vertical axis represents the level of services that can

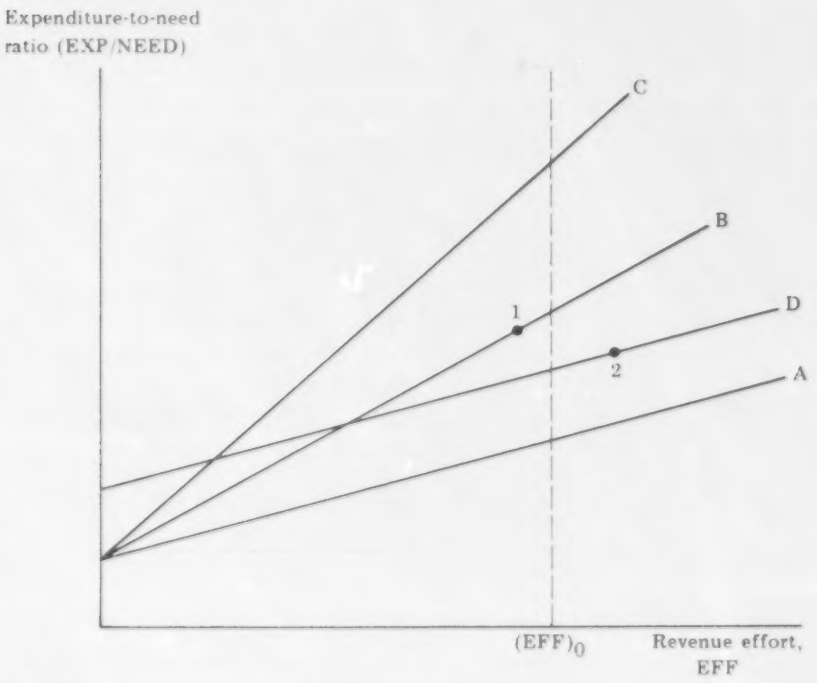

Fig. 3.2—Absolute fiscal opportunity schedules of cities

be financed from sources other than own revenue.[14] One city is better off financially than another if it can provide more services per capita at a given effort rate or, conversely, if it requires a lower effort rate to finance a given level of services. Therefore, city C is better off than city B, which is better off than city A. Some ambiguity in rankings arises out of crossovers in fiscal opportunity schedules. City D appears to be better off than city B at low effort rates, but worse off at high rates. If both cities have made fiscal choices that position them to the right of the crossover (e.g., points 1 and 2 in the figure), the possibility of an ambiguous ranking is of only academic interest. City B will appear able to provide more services than city D when evaluated at either city's effort rate. When many cities are examined, it is likely that there will be some truly ambiguous cases. Even where this occurs, however, it is possible to rank cities according to their abilities to finance services out of *own revenue*. It is only when ranking cities on the basis of the combination of own revenue and external aid that it may be impossible to say in every instance that one city is unambiguously better off than another.

The *incremental fiscal opportunity schedule* is a relationship between the year-to-year *change* in a city's fiscal effort and the *change* in its expenditure-to-needs ratio. A mathematical statement of the incremental schedule and details of its derivation are presented in the appendix. Figure 3.3 shows the incremental opportunity schedules of four different cities. In this figure, the quantity measured along the horizontal axis is the change in revenue effort, Δ(EFF). The quantity measured vertically is the change in the expenditure-to-needs ratio, Δ(EXP/NEED). The position of the intercept with the vertical axis indicates whether the city's condition has improved or worsened during the one-year interval. Because the incremental schedules for cities A and D pass through the zero point (origin) of the figure, we know that their fiscal situations have remained unchanged. By exerting the same effort as in the previous year, they are able to sustain the existing levels of services. City B's situation has worsened. If city B is unwilling to exert more effort to raise revenue from its own sources, its expenditure-to-needs ratio will have to fall by the amount OB_2. Alternatively, to sustain the level of EXP/NEED of the previous year, it must increase revenue effort by the amount OB_1. In contrast, city C's position has improved. If its effort rate remains unchanged, sufficient additional revenue will be collected to raise the expenditure-to-needs ratio by the amount OC_1. Alternatively, city C can maintain the previous year's level of EXP/NEED while reducing its effort rate by an amount OC_2. It is possible to rank cities according to either the effort increment required to maintain service levels or the service increment associated with a constant effort rate.

APPLICATIONS OF THE FISCAL OPPORTUNITY SCHEDULE

Measuring Fiscal Disadvantage and Fiscal Decline

The absolute and incremental fiscal opportunity schedules may be used to quantify the severity of the types of fiscal problems that were described in Section

[14] The availability of matching grants is not reflected in the intercept of the fiscal opportunity schedule. To separate own-source revenue from external aid when matching grants exist one must take into account both the size of the intercept and the degree to which the slope of the schedule has been increased by the matching provisions.

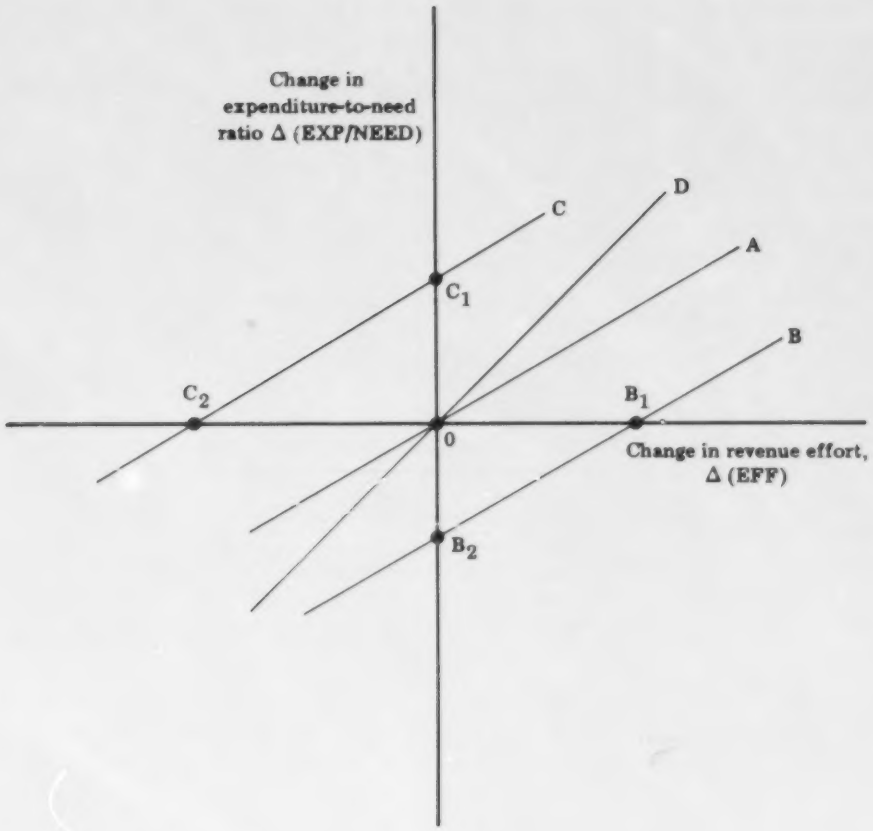

Fig. 3.3—Incremental fiscal opportunity schedules

II as *fiscal disadvantage* and *fiscal decline*. Cities with inferior absolute opportunity schedules are fiscally disadvantaged. It is difficult for such cities to support the levels of services that prevail elsewhere in the country. They must either settle for lower than average services or impose greater than average tax rates on their citizens. Cities may be in this position because they are poor (i.e., their revenue bases are small), because they face unusually high service demands (large concentrations of high service-consuming households), because costs are high in their areas, or because they have broader responsibilities than other cities. A combination of these conditions will create the least favorable opportunity schedules. Cities that show up unfavorably on the incremental fiscal opportunity schedule are experiencing fiscal decline. Their positions, whether high or low in absolute terms, are getting worse. They face the necessity of either raising their tax rates, contracting their services, or doing some combination of the two. Cities may be declining fiscally either because their economies are contracting or, more commonly, because their revenue bases, though growing, are failing to keep up with the growth in service demands and costs. Even if a city is wealthy and supports diverse and well-financed

services, an adverse combination of growth rates will appear as fiscal decline on its incremental opportunity schedule.

An important point in assessing urban fiscal conditions is that the relative positions of a given city on the absolute and incremental scales may be very different. A given city need not, and generally does not, suffer from both fiscal disadvantage and fiscal decline. A city may rank high on the absolute scale, but its fortunes may be declining. Such a city, even though well-off relative to other cities, may face serious adjustment problems. Another city may be much worse off in an absolute sense, but its position on the incremental scale may be favorable. It may be experiencing sufficiently rapid growth in its revenue base that it can expand services while holding tax rates constant. New York is clearly an example of the first kind of city: It is capable of supporting more services per capita, even taking into account its large welfare population and higher than average price levels, at lower tax rates than most other cities. However, its position is not as favorable as in the past, which means that it is in a negative position on the incremental scale. At the other end of the spectrum are many cities of the South and Southwest. Although their income levels and revenue bases are not as high in absolute terms as those of the older cities in the Northeast, they are growing at a sufficiently rapid pace to keep up with both population growth and inflation. Therefore, although most cities in the South rank lower than most of these in the Northeast on the absolute opportunity scale, they rank higher on the incremental scale. In some places (e.g., Houston), growth generates an annual fiscal surplus, which can be applied to service improvement or tax effort reduction.

It is difficult to say which cities are in worse financial straits; those that must make painful adjustments to declining revenue bases and growing expenditure needs or those that are disadvantaged, but holding their own or improving. During recent years, especially during the recession period, the adjustment problems of declining, older cities have overshadowed the problems that less wealthy cities encounter in supporting minimal levels of services.

Indices of Fiscal Condition

To determine how much better off or worse off one city is than another, the whole fiscal opportunity schedules of the two cities must be compared. Since it takes two parameters to describe an opportunity schedule, a slope parameter and a level parameter, no single measure, or index, of the relative fiscal well-being of cities is entirely satisfactory. There are bound to be situations in which the rankings of different cities will be reversed, depending on which of two indices is used. Nevertheless, there are a number of indices of fiscal condition derivable from the fiscal opportunity schedule that may be useful for certain policy purposes provided that their intrinsic limitations are taken into account.

Indices of Absolute Fiscal Condition. The following are two indicators of the absolute fiscal capabilities of a city, either of which can be used to measure the degree to which a city is fiscally disadvantaged:

1. An index of the expenditure-to-needs ratio that a city can attain by exerting the *average* level of revenue effort of all cities in its category.
2. An index of the rate of effort that a city must exert to raise its expenditure-to-needs ratio to the *average* level supported by all cities in its category.

A value of less than 1.0 on the first index or greater than 1.0 on the second index indicates that a city is less favorably situated than the average city in its category. It would be possible to designate a certain cut-off point on the index beyond which cities would be considered disadvantaged, just as one defines a certain level of income below which families are considered poor.

A third index, closely related to the two defined above, is a measure of the city's ability to satisfy the service needs of its constituents from its own resources. This index, which takes no account of the availability of external financial aid, is simply the ratio of the city's own revenue base to its composite index of expenditure needs.

Indices of Fiscal Improvement or Decline. The following two indicators of the direction and rate of change in a city's fiscal position are analogous to the two indices of absolute fiscal position defined above:

1. The percentage rate by which a city's expenditure-to-needs ratio increases from one year to the next when its rate of revenue effort is held constant.
2. The percentage rate by which a city's revenue effort must increase or decrease to hold the city's expenditure-to-needs ratio constant from one year to the next.

The base value for both of these indicators is zero. That is, if no change in the effort rate is needed to hold EXP/NEED constant from one year to the next or vice versa, the city's fiscal position has neither improved nor declined during the one-year interval. Otherwise, a positive value of the first index or a negative value of the second index indicates that the city's fiscal position is improving.

Details of the procedures for constructing these indices are given in the appendix. The following numerical example illustrates how indices values would be computed and used in comparing absolute conditions and rates of improvement or decline among cities.

Numerical Example

Consider two hypothetical cities, labeled A and B, one of which is a typical, older, declining city in the Northeast, the other a newer, growing city in the Southeast. The first city is characterized by high, but slowly growing real per capita income, higher than average levels of service demand, high and rapidly increasing service costs, and a wider than average range of service responsibilities. The second city has low, but more rapidly growing real per capita income, a high level of service demand because of its large number of poor people, relatively low service costs, and a relatively narrow range of responsibilities. Assume that the two cities receive the same per capita amounts of state and federal aid, but that the older city exerts considerably greater effort to support local public services. Table 3.10 summarizes the main characteristics of the two hypothetical cities during each of two consecutive fiscal years.

The absolute fiscal opportunity schedule for each city in each year is given by the formula

$$\frac{\text{EXP}}{\text{NEED}} = \frac{\text{AID} + \text{EFF} \times \text{BASE}}{\text{DEM} \times \text{COST} \times \text{RESP}}.$$

The opportunity schedule obtained by applying this formula to the hypothetical data in the table is as follows:

	City A	City B
Year 1	74 + 4412 EFF	96 + 3846 EFF
Year 2	72 + 4297 EFF	97 + 3963 EFF

An index of absolute fiscal condition can be constructed for the two cities by determining the relative levels of EXP/NEED that each city can support at the all-city average rate of fiscal effort. Suppose that the average rate of effort is 5 percent and that this rate of effort produces $350 in per capita revenue in an average city in year 1. By definition, the value of the composite NEED index (DEM × COST × RESP) is 1.00 for an average city, so that EXP/NEED would be 350. The per capita expenditure levels (EXP) that could be supported by city A and city B at a 5-percent level of effort are $400 and $300 but when deflated by the corresponding NEED indices, these amounts are reduced to 295 and 288, respectively. Comparing these with the norm value of 350, the EXP/NEED indices for the two cities are .84 and .82. City A falls below the norm because of its high levels of service demand and cost. City B falls below because of its low revenue base. Alternatively, the relative fiscal positions of the two cities can be summarized by the rates of effort required to produce the average EXP/NEED value of 350. For city A, the required level of effort is 6.3 percent (.063). For city B, it is 6.6 percent (.066). The values of the effort index for the two cities (comparing the rates of effort to the average, .05) are 1.26 and 1.32, respectively.

Next, consider the change in each city's condition from one year to the next. Table 3.10 shows that in year 1 city A exerts an actual rate of effort of 0.6, which supports $460 per capita in outlays, or an expenditure-to-needs ratio of 338. But in year 2, city A's fiscal opportunity schedule is worse than in year 1. In order to maintain EXP/NEED at the year 1 level, city A must raise its rate of effort to .062. Alternatively, if city A maintains its rate of effort at .06, EXP/NEED will fall to 330—a drop of about 2.5 percent. In contrast, city B's fiscal opportunities are better in year 2 than in year 1. If city B merely maintains its year 1 rate of effort, .035, it will be able to raise EXP/NEED from 231 to 236—a gain of about 2.2 percent. Alternatively, city B can maintain EXP/NEED at its year 1 level while reducing its rate of effort from .035 to 0.34—thereby reducing local tax burdens by about 3 percent.

The incremental opportunity schedules describing these trade-off possibilities are:

$$\text{City A:} \quad \Delta(\text{EXP/NEED}) = -8.9 + 4297\Delta(\text{EFF})$$
$$\text{City B:} \quad \Delta(\text{EXP/NEED}) = 5.1 + 3963\Delta(\text{EFF})$$

The signs of the intercept terms in these equations indicate that city A is worse off, but city B is better off, in year 2 than in year 1.

By doing these computations for a cross-section of cities, it would be possible to demonstrate, with only occasional ambiguities, how different cities and categories of cities rank in terms of urgency or severity of their fiscal problems. The method of index construction suggests, as a starting point for policy analysis, the four-way classification of cities illustrated by the following matrix:

Index of Change in Fiscal Opportunity

Index of Absolute Fiscal Opportunity	Positive	Negative
Above Average	A	C
Below Average	B	D

Cities whose index values place them in quadrant A have no fiscal problems. Cities in quadrant B—below average but gaining—face the immediate problem of relative disadvantage, but have favorable longer-run prospects. This is probably the quadrant occupied by many of the growing sunbelt cities. Cities in quadrant C—above average but declining—are in the situation that characterizes much of the older, urban Northeast. They face adjustment problems and an uncertain future. The cities in quadrant D, whose fiscal positions are low and falling, may be said to be experiencing full-scale urban pathology. The continued ability of their public sectors to function—and, therefore, their continued viability as residential and business locations—is questionable.

Table 3.10

Numerical Example: Characteristics of Two Hypothetical Cities

Characteristic	Symbol	City A		City B	
		Year 1	Year 2	Year 1	Year 2
Revenue Base (per capita income)	BASE	6,000	6,360	4,000	4,320
Per Capita External Aid	AID	100	106	100	106
Relative Demand Index[a,b]	DEM	1.12	1.13	1.22	1.20
Relative Cost Index[b]	COST	1.10	1.19	.95	1.01
Relative Scope of Responsibility[c]	RESP	1.10	1.10	.90	.90
Rate of Fiscal Effort in Year 1	EFF	.06	--	.035	--
Per Capita Expenditure in Year 1	EXP	460	--	240	--
Per Capita Expenditure per Unit of Head of Household	EXP/NEED	338	--	231	--

[a]It is assumed that relative demand is a function of percentage poverty and the age of the housing stock. In City A, the poverty percentage increases because middle-income people move out and the housing stock is aging. In City B, the poverty percentage declines because of economic growth, and new construction reduces the average of the housing stock.

[b]The bases for the relative demand and relative cost indexes are all-city averages for year 1.

[c]It is assumed that the county government performs many of the functions in City B that the municipal government must perform itself in City A.

There is little doubt that quadrants B and C are well populated. It is less clear how many cities fall into categories A and D. The answers may be significant for federal policymaking. The different kinds of fiscal problems represented by categories B, C, and D call for different federal policy responses and, possibly, different policy goals. For instance, it may be desirable from a national point of view to attempt to revitalize cities that are still relatively well off but declining (quadrant C), but the indicated treatment of cities at the advanced stage of decay (quadrant D) may be to facilitate, rather than try to reverse, the ongoing economic and demographic shifts. The information base for urban policymaking would be enhanced by even a preliminary effort to construct the indices of fiscal condition for major American cities and to classify cities into the appropriate problem categories.

IV. THE DIRECT EFFECTS OF FEDERAL POLICIES ON URBAN FISCAL CONDITIONS

Section III identified a number of factors which, in combination, determine the range of fiscal options available to a city or urban area. Each of these factors can be influenced to some degree by actions of the federal government. Some federal policies affect the local public sector directly. For example, the various federal grant programs add directly to the revenue available to subfederal jurisdictions. Other federal influences are less direct. The most important among these are federal influences on the locational decisions of households and business firms, which indirectly influence local revenue bases and levels of demand for local services. To obtain a complete picture of the federal impact on urban fiscal conditions, it is necessary to examine both the policies that impinge on the public sector directly and those that operate indirectly through the private sector.

The analysis of federal influences on urban fiscal conditions is presented in two parts. This section discusses the federal programs and policies that affect the local public sector directly. It covers federal grant programs, "tax expenditures" on behalf of local governments, policies affecting the fiscal roles and responsibilities of the state-local sector, and policies that impose service obligations or costs on local governments. Section V reviews the federal policies that influence the fiscal conditions of the local public sector indirectly by affecting population and residential location patterns and the structure of private economic activity in urban areas. Figure 4.1 illustrates the distinction between the direct federal effects on the local public sector, examined in this section, and the indirect effects examined in Section V.

The division of federal policies into those that affect fiscal conditions directly and indirectly also corresponds to a division according to the fiscal opportunity factors identified in Section III. The federal policies that impinge directly on the local public sector affect specific elements of the local fiscal opportunity schedule: the availability of external aid, the availability of revenue subsidies, the scope of local fiscal responsibility, and certain aspects of the cost of providing public services. The policies that operate initially on the private sector influence the remaining fiscal opportunity factors: the size and composition of the urban revenue base (both business and nonbusiness components), the level and composition of demand for local public services, and some aspects of the cost of service provision. There are a few instances in which the federal government can affect the same fiscal opportunity factor both directly and indirectly; but for the most part, the conceptual distinction between direct and indirect channels of influence remains valid.[1]

A complicating factor in analyzing the effects of federal policies is that a single federal action may affect local fiscal opportunities in several ways. Sometimes the

[1] Examples of direct and indirect federal influence on the same fiscal opportunity factor: Federal actions influence the local tax base mainly indirectly by inducing changes in residential and business location patterns, but may also exert a direct influence by taking land off the local tax rolls to accommodate federal facilities. Federal actions influence local service costs directly by imposing certain service standards or obligations, and indirectly by affecting the general levels of wages and prices in the economy.

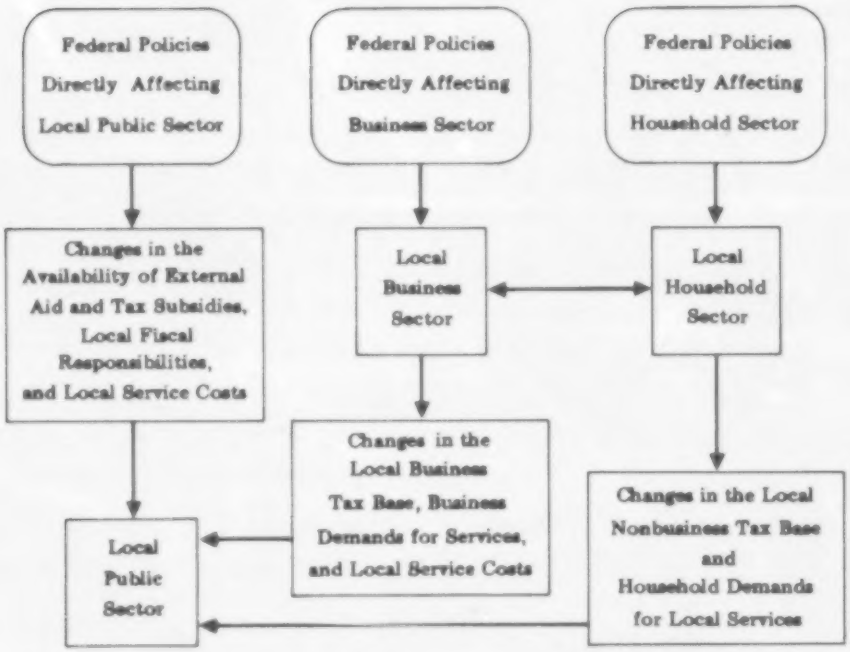
Federal Policies Directly Affecting Local Public Sector
Federal Policies Directly Affecting Business Sector
Federal Policies Directly Affecting Household Sector
Changes in the Availability of External Aid and Tax Subsidies, Local Fiscal Responsibilities, and Local Service Costs
Local Business Sector
Local Household Sector
Changes in the Local Business Tax Base, Business Demands for Services, and Local Service Costs
Changes in the Local Nonbusiness Tax Base and Household Demands for Local Services
Local Public Sector

Fig. 4.1—Structure of The Federal Policy Impact Analysis

separate effects are mutually reinforcing, sometimes they are offsetting. An example of an offsetting effect is that imposition of a federal air quality standard may discourage business investment in an area, thereby reducing the local business tax base, while the resulting improvement in air quality draws people to the area, thereby causing the residential component of the tax base to increase. An example of a program with mutually reinforcing effects is a subsidy for central city housing rehabilitation, which, if successful in attracting small, upper-income households, will simultaneously increase the per capita property tax base of the city, and increase the per capita demand for services. The *net* fiscal impact of the federal action is more significant than its effects on the individual fiscal opportunity factors.

The factor-by-factor review of federal policies presented in this and the following sections has four objectives: (1) to identify the federal programs and policies that affect each fiscal opportunity factor, (2) to present a conceptual analysis of the nature and expected direction of the effects, (3) to summarize existing empirical knowledge of the directions and magnitudes of the individual effects (and to point out important gaps in that knowledge), and (4) where possible, to assess the net effects of federal policies that influence local fiscal conditions in more than one way. These sections deal with federal influences on fiscal opportunities, but not fiscal outcomes. The question of how local governments respond when their opportunities are altered is taken up separately in Section VI. Thus, for example, the question of how federal actions affect the external aid funds available to local governments is dealt with in this section, but whether the localities respond to increments in aid by spending more for services or cutting back their own taxes is discussed in Section VI.

OVERVIEW OF FEDERAL POLICY IMPACTS

Figure 4.2 provides a more detailed overview of the channels by which federal policies affect the finances of the local public sector. It depicts the major determinants of local fiscal opportunities and the broad categories of federal policy that affect each determinant. The figure distinguishes between factors that determine local fiscal resources (the four rectangles on the right-hand side of the figure) and those that determine demands for local public expenditures (the four rectangles on the left). A distinction is also made between federal policies that impinge directly upon the local public sector and those that operate indirectly via the household and private business sectors (the indirect linkages are represented by dashed lines).

The four components of local fiscal resources shown in the diagram are the residential, or personal, component of the local tax base, the business component of the tax base, federal revenue subsidies, and external aid from federal and state sources. It is shown that the federal government affects the first two *indirectly* by means of policies that alter the size and composition of the urban population and the level and composition of urban economic activity. Federal grant policy is shown as operating both directly and through state government to influence the amount of external aid available to the local sector. Federal tax policy is shown as the source of revenue subsidies to local governments.

On the expenditure side, demands for public services from urban households and businesses are shown as being influenced by the same federal policies as those that affect the household and business components of the tax base. Both direct and indirect federal influences on local service costs are indicated. Also, the scope of local fiscal responsibility is shown as being affected directly by federal grants and other federal policies and by federally induced changes in state-level fiscal decisions.

Figure 4.2 emphasizes the point that some of the main determinants of local fiscal conditions—the business and residential components of the local tax base and the level of demand for public services—can be affected primarily, or exclusively, by federal policies directed at the *private* sector. Both the residential-personal component of the tax base and the level of household demand for services depend mainly on population characteristics and the locational decisions of households. Both the business component of the tax base and business demands for public services depend primarily on the structure of local economic activity and the locational decisions of business firms. Although it is difficult to quantify the relative importance of the various determinants of local fiscal conditions, it seems likely that the federal policies aimed at the private sector have had an impact on public sector outcomes comparable in importance with the impact of policies that affect the public sector directly. The latter—mainly federal grant policies—have provided a growing share of the revenue of local governments. The former have helped to determine the magnitude of local financial resources, which localities must still rely upon for the bulk of their funds, and to create the physical and demographic conditions with which local jurisdictions must cope in providing public services. There is insufficient empirical evidence to determine whether a given federal expenditure can have a greater impact in the long run if spent for direct assistance to local governments or for programs that stimulate the private business and residential sectors. There is more than sufficient reason, however, to give the latter option equal consideration in formulating federal urban policies.

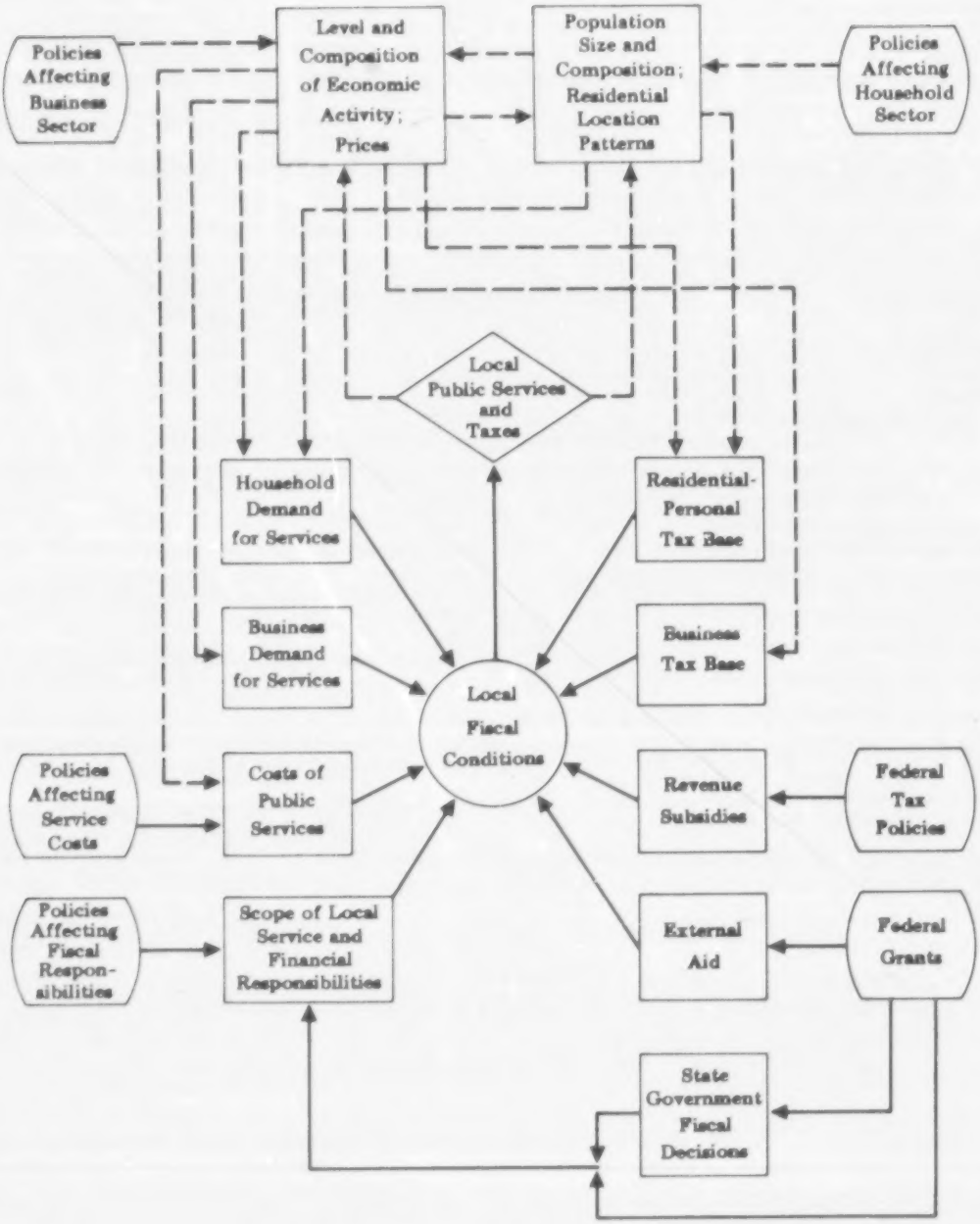
Policies Affecting Business Sector
Level and Composition of Economic Activity; Prices
Population Size and Composition; Residential Location Patterns
Policies Affecting Household Sector
Local Public Services and Taxes
Household Demand for Services
Residential-Personal Tax Base
Business Demand for Services
Business Tax Base
Local Fiscal Conditions
Policies Affecting Service Costs
Costs of Public Services
Revenue Subsidies
Federal Tax Policies
Policies Affecting Fiscal Respon-sibilities
Scope of Local Service and Financial Responsibilities
External Aid
Federal Grants
State Government Fiscal Decisions

Fig. 4.2—Overview of Federal Policy Impacts on the Local Public Sector

Figure 4.2 also indicates the two-way, feedback relationship that exists between the public and private sectors. On the one hand, the principal fiscal outcomes, local public services and taxes (represented by the diamond-shaped element in the diagram), are determined by local fiscal conditions, which are influenced by the state of the private economy. On the other hand, the adequacy of public services and the magnitudes of tax burdens in each community influence business and residential location choices. Therefore, any federal policy that alters local fiscal conditions, either directly or indirectly, is likely to affect behavior in the business and household sectors, and that behavior, in turn, is likely to have second-order effects on local fiscal conditions. A full analysis of the federal government's involvement with local finance must take account of the longer-run, second-order, locational effects as well as the initial effects of federal actions on the local fiscal opportunity factors. Some of the locational incentives created by federal policies are referred to in this section and in Section V. A more extensive discussion of feedback effects between the public and private sectors is presented as part of the discussion of local responses to federal policy in Section VI.

FEDERAL GRANTS AND THE AVAILABILITY OF EXTERNAL AID TO LOCAL GOVERNMENTS

The most visible way in which the federal government affects the finances of the urban public sector is by providing direct financial aid to state and local governments. Grants-in-aid now flow from the federal government to the state-local sector at an annual rate of more than $60 billion. As Table 4.1 shows, the importance of federal grants has grown throughout the post-war period, both in relation to the federal budget as a whole and to the total revenue of state and local government. Between FY 1950 and FY 1975, the share of the federal budget expended as intergovernmental aid increased from 5.4 to 15.2 percent, and the share of federal aid in total state-local revenue increased from 10.3 to 23.3 percent.

There are hundreds of individual grant programs. The purposes for which they provide funds range from compensatory education to law enforcement assistance to construction of water pollution control facilities. However, the bulk of the funds are accounted for by a few dozen programs, each of which distributes several billions of dollars among state and local jurisdictions. Table 4.2 presents estimated federal grant outlays by functional area and by individual large programs within each functional area for FY 1976. The largest individual grant programs are highway construction ($6.2 billion), employment and training ($3.1), Medicaid ($8.2), public assistance ($5.9), and general revenue sharing ($6.3). The most important functional areas are health; income security; and education, employment, training, and social services.

Only a minor fraction of the grant funds flows directly from the federal treasury to cities or other local jurisdictions. Most of the large programs listed in Table 4.2 channel money to state governments, at least in the first instance. However, a substantial fraction of federal aid to states is "passed through" to localities. Moreover, as is explained below, even the grants that are not explicitly passed through to localities probably affect the total amount of external aid (from state and federal sources combined) available to the local sector.

Table 4.1

Federal Grants in Relation to Total Federal Outlays and Total State and Local Revenue, Selected Years, 1950-75

Calendar Years	Federal Grants		
	Amount (billions of dollars)	As Percentage of Total Federal Expenditure	As Percentage of Total State and Local Receipts
1950	2.2	5.4	10.3
1955	3.1	4.6	9.8
1960	6.5	7.0	13.0
1961	7.2	7.1	13.3
1962	8.0	7.2	13.7
1963	9.1	8.0	14.4
1964	10.4	8.8	15.0
1965	11.1	9.0	14.8
1966	14.4	10.0	17.0
1967	15.9	9.7	17.0
1968	18.6	10.3	17.4
1969	20.3	10.8	17.0
1970	24.4	11.9	18.1
1971	29.0	13.1	19.0
1972	37.5	15.3	21.1
1973	40.6	15.3	20.9
1974	43.9	14.6	21.0
1975[a]	54.2	15.2	23.3

SOURCE: *Economic Report of the President*, Washington, D.C., January 1976, pp. 250-251.

NOTE: Data are from the government sector of the national income and product accounts and do not correspond precisely to data shown in the federal budget.

[a]Preliminary data.

Intergovernmental Revenue of Local Governments

Local governments in the United States received $62 billion in state and federal aid in 1974-75, 42.4 percent of their total general revenue from all sources. The degree to which local governments depend on external aid varies considerably, both among classes of local governments and among individual governments within each class. As shown in Table 4.3, general-purpose local governments (counties, municipalities, and townships) derived 40.8 percent of their revenue from intergovernmental aid in 1974-75. City governments relied slightly less on intergovernmental aid (39.4 percent), but governments of large cities (populations of 300,000 or more) obtained a larger fraction of their revenue (44.7 percent) from external sources. Of all local governments, local public school districts relied most heavily on intergovernmental revenue (49.3 percent), but nearly all this came from or was channeled through the states.

Table 4.4 shows the large variations that exist among individual large cities in both per capita amounts of intergovernmental aid and in the fraction of general

Table 4.2

Federal Grants to State and Local Governments, by Function and for Selected Major Programs, FY 1976 Estimates

Program	FY 1976 Outlays ($ millions)
National Defense	77
Natural Resources, Environment and Energy	3,088
Environmental Protection Agency	2,532
Agriculture	499
Commerce and Transportation	8,227
Airport trust fund	375
Highway trust fund	6,170
Urban Mass Transportation Administration	1,276
Community and Regional Development	4,008
Appalachian development programs	338
Economic Development Administration	204
Community development block grants	750
Urban renewal	1,375
Other categorical programs replaced by community development block grants	444
Community Services Administration	478
Education, Employment, Training, and Social Services	14,422
Elementary and secondary education	2,277
School assistance in federally affected areas	438
Emergency school assistance	232
Occupational, vocational, and adult education	674
Work incentives	330
Social services	2,358
Child development	466
Youth, aging, and vocational rehabilitation programs	1,122
Employment and training assistance	3,050
Temporary employment assistance	2,331
Unemployment trust fund: training and employment	434
Health	10,032
Health Services Administration	595
Alcohol, Drug Abuse, and Mental Health Administration	508
Health Resources Administration	613
Medicaid	8,184
Income Security	11,212
Agricultural Marketing Service	294
Food Stamps--administration	230
Child nutrition and special milk programs	2,225
HEW: Public assistance maintenance	5,898
HUD: Housing assistance	1,609
Unemployment trust fund: administration of payments	919
Veterans Benefits and Services	73
Law Enforcement and Justice	838
Law enforcement assistance	750
General Government	145
Revenue Sharing and General-Purpose Fiscal Assistance	7,166
Customs receipts for Puerto Rico and the Virgin Islands (shared revenue)	216
General revenue sharing	6,272
Federal payment to the District of Columbia (shared revenue)	254
TOTAL	59,787

SOURCE: Budget of the United States Government, Fiscal Year 1977, Special Analyses, Washington, D.C., pp. 268-273.

Table 4.3

Percentage of Local Government Revenue Derived from Intergovernmental Aid, 1974-75

Type of Government	Percentage of General Revenue Derived from Intergovernmental Aid			
	From All Levels of Government	From Federal Government[a]	From State Government	From Local Government
All Local Governments	42.4	7.5	34.9	(b)
General-Purpose Local Governments	40.8	9.7	29.6	1.5
Counties	44.9	7.3	36.0	1.6
Municipalities	39.4	11.7	26.2	1.5
Townships	29.6	6.4	21.6	1.6
Special-Purpose Local Governments	47.6	3.8	40.8	3.0
School Districts	49.3	1.6	45.8	1.9
Other Special Districts	37.0	17.4	9.1	10.5
Large City Governments[c]	44.7	11.4	32.1	1.2

SOURCES: U.S. Bureau of the Census, *Governmental Finances in 1974-75*, GF75, No. 5, and *City Government Finances in 1974-75*, GF75, No. 4, Washington, D.C., 1976.

[a] Includes direct aid from the federal government only. Federal funds passed through state governments are counted as state aid.

[b] Interlocal transfers are excluded.

[c] Includes the 48 largest U.S. cities (all cities with 300,000 or more inhabitants in 1970).

revenue derived from external sources. Intergovernmental revenue amounts to 41.6 percent of the combined general revenue of the 48 cities. However, the percentage figures range from 15 percent (Dallas) to 61 percent (Baltimore). Note that direct aid from the federal government plays a much more significant role in the finances of some of these large cities than it does in the finances of the local sector as a whole or of all U.S. cities. In fact, in 26 of the 48 cities shown in Table 4.4, direct federal aid amounted to more than half of all intergovernmental revenue.

The composition by function of state and federal grants to local governments is summarized in Table 4.5. Of the total of $57.5 billion in grants made in 1973-74, nearly half, $27.1 billion, consisted of state aid for local public schools. Most of the grant money in this category flows to independent local public school districts, rather than to cities or other general-purpose governments.[2] Other important categories are welfare and highways. Although the funds in these two categories are shown in Table 4.5 as coming entirely from the states, much of this money represents passed-through federal assistance. Local governments also received approximately $9 billion in general-purpose assistance in 1973-74. This included $4.1 billion in federal general revenue sharing (GRS) funds and $4.8 billion in general

[2] The legal status of school districts varies among states. Most states have "fiscally independent" districts; however, in some states, especially in the South, school finance is a responsibility of general-purpose county governments, and in other states (e.g., New York), there is a mixed system with some fiscally independent and some fiscally dependent districts.

Table 4.4

Intergovernmental Aid as a Source of Municipal Revenue, the 48 Largest U.S. Cities, 1973-74

City	Per Capita General Revenue	Per Capita Intergovernmental Revenue				Total Intergovernmental Revenue as Percent of General Revenue
		Total	From Federal Government	From State Government	From Local Government	
Atlanta	$ 453	$142	$101	$ 19	$22	31
Baltimore	945	572	91	473	7	61
Birmingham	265	70	44	15	11	26
Boston	893	266	91	173	3	30
Buffalo	640	376	52	264	60	59
Chicago	319	102	56	36	6	32
Cincinnati	736	224	86	114	24	30
Cleveland	370	117	71	41	6	32
Columbus	235	65	38	24	3	28
Dallas	260	40	31	6	3	15
Denver	565	204	110	94	1	36
Detroit	486	186	100	72	15	38
El Paso	161	35	31	3	2	22
Fort Worth	223	54	43	10	1	24
Honolulu	282	62	41	21	--	22
Houston	185	31	27	2	2	17
Indianapolis	312	123	50	74	--	39
Jacksonville	302	107	50	57	--	35
Kansas City	371	82	64	16	3	22
Long Beach	330	68	14	43	10	21
Los Angeles	311	76	34	38	3	24
Louisville	423	178	153	14	11	42
Memphis	425	250	33	122	94	59
Miami	234	83	29	47	7	35
Milwaukee	327	155	45	107	3	47
Minneapolis	349	146	50	88	8	42
Nashville-Davidson	510	170	60	109	1	33
Newark	783	408	56	349	3	52
New Orleans	338	115	72	42	--	34
New York	1,378	664	66	595	2	48
Norfolk	676	347	128	218	1	51
Oakland	338	84	41	40	4	25
Oklahoma City	227	62	49	13	--	27
Omaha	222	78	42	31	5	35
Philadelphia	457	137	69	66	2	30
Phoenix	239	98	47	50	1	41
Pittsburgh	282	120	87	30	3	43
Portland	270	88	54	29	5	53
St. Louis	418	106	60	45	1	25
St. Paul	320	134	39	82	13	42
San Antonio	140	40	36	2	2	29
San Diego	220	74	30	32	11	34
San Francisco	884	324	98	225	1	37
San Jose	209	60	25	33	3	29
Seattle	365	135	69	41	25	37
Toledo	250	90	64	25	1	36
Tulsa	265	76	65	11	--	29
Washington, D.C.	1,520	680	680	--	--	45
Largest Cities	597	249	71	171	6	42

SOURCE: U.S. Bureau of the Census, *City Government Finances in 1973-74*, Series GF74, No. 4, U.S. Government Printing Office, Washington, D.C., 1975, Table 7.

NOTE: A dashed entry (--) indicates less than $0.50.

Table 4.5

Intergovernmental Grants to Local Governments, 1973-74

Function	Direct Federal Grants ($ millions)	Grants from State Governments ($ millions)
Total, All Functions	12,122	45,600
Education	892	27,107
Welfare	(a)	7,028
Highways	(a)	3,211
Health and Hospitals	(a)	948
Housing and Urban Renewal	2,290	163
General Support	4,286[b]	4,804
All Other	4,654	2,339

SOURCES: U.S. Bureau of the Census, *Governmental Finances in 1973-74*, GF74, No. 5, Washington, D.C., November 1975; U.S. Bureau of the Census, *State Government Finances in 1974*, GF74, No. 3, Washington, D.C., August 1975.

[a]Some items in these categories may be included under "All Other."

[b]Includes General Revenue Sharing payments ($4,098 million) and payments to the District of Columbia ($188 million).

aid from state governments. All GRS funds and nearly all unrestricted state aid was earmarked for cities and other general-purpose units of local government.

It is instructive to examine the relationship between local expenditures for each major service function and the availability of state and federal grants earmarked for support of that function. Table 4.6 shows the degree to which intergovernmental aid is concentrated in certain program areas. The most expensive local government function, education, receives approximately one-half of its funding from grants. Approximately 75 percent of local welfare spending and over 80 percent of spending for housing and urban renewal is supported by intergovernmental aid. Highway spending (which includes outlays for construction and maintenance of streets and roads) receives about 44 percent. In contrast, the health and hospitals function receives only slightly more than 10 percent of its financing from specifically earmarked external funds. Such basic municipal functions as police and fire protection and sanitation also receive very small amounts of earmarked aid, although specific data were not available for inclusion in the table. These ratios should not be taken too literally, however. Because of the availability of general-purpose intergovernmental revenue and because grant funds, once received at the local level, tend to be fungible, local services may benefit from the availability of aid even though they are not the services designated by the aid-granting agency.[3] Table 4.6 suggests the

[3] Empirical findings concerning spillovers of grant funds from one function to another are reported in Section VI.

Table 4.6

Relationship Between Local Government Outlays, by Function, and State and Federal Grants, 1973-74

Function	Local Government Direct Expenditure ($ billions)	State and Federal Grants to Local Governments ($ billions)	Grants as a Percentage of Local Government Expenditure
Total, All Functions	124.7	57.7	46.3
Education	56.1	28.0	49.9
Welfare	9.6	7.0	72.9
Highways	7.3	3.2	43.8
Health and Hospitals	8.5	0.9	10.6
Housing and Urban Renewal	3.1	2.5	80.6
All Other	40.2	16.1	40.0

SOURCE: U.S. Bureau of the Census, *Governmental Finances in 1973-74*, GF74, No. 5, Washington, D.C., November 1975.

intentions of the state and federal funding agencies but it does not necessarily indicate the effect of grants on the composition of local expenditures.

The Federal-State-Local Fiscal System

The fiscal opportunities of local governments depend upon the total amount of external aid available from all sources—state as well as federal. The aid that flows directly from the federal government to the local sector is small compared with the funds that flow from or through the states. It would be incorrect and seriously misleading, however, to infer that the importance of federal grant policies can be measured by the size of the *direct* aid flow or to assume that state and federal aid are independent revenue sources that can be analyzed separately. The amount, composition, and form of state aid to local governments is determined, in part, by federal policies. There are four ways in which the flows of federal and state money are interrelated—all of which should be considered in assessing the effects of federal policies on the financial resources available to the local sector:

First, where federal aid to local jurisdictions is passed through the state government, the state may have a role in determining the characteristics of the federal grant program. In some cases, this role is narrow: The state serves mainly as a conduit for federal funds and performs certain financial management and administrative functions. In other cases, the state role is more substantial: The state may have major responsibilities for designing and administering the grant-funded program (often within general federal guidelines) and may have considerable discretion over the intrastate distribution of funds. The broader the state role, the less direct is the connection between federal decisions about the program and fiscal and distributional impacts at the local level.

Second, local functions that are assisted by federal aid that passes through the states may also receive grants from the states' own revenue sources. In general, the amounts of state and federal assistance are likely to be interdependent. In some

cases (mainly welfare and social services programs), the local jurisdictions do not receive separate federal and state grants but commingled federal-state assistance. In other program areas, such as elementary and secondary education, the state grants and the passed-through federal grants are nominally for separate programs and projects. In either case, however, it would be surprising if the state government made its financial aid decisions without taking account of the federal grants available for particular functions and jurisdictions. If federal aid were greater, the state contribution might well be lower (i.e., state officials, observing a larger proportion of service needs being met with federal funds, might choose to cut back on the state's own aid outlays). If federal aid were lower, the state might be motivated to take up part of the slack. On theoretical grounds, it is reasonable to expect that any increment in federal aid will be partly offset by a shift in state aid in the opposite direction (relative to the amount of state aid that would have been provided in the absence of the federal increment).

Third, the portion of federal aid to states that is earmarked for state-operated programs and not for transmission to localities may have an indirect effect on the flow of state aid money to local governments. The reason is that any form of aid to the state, regardless of its nominal purpose, is likely to relax the state's overall budget constraint and generate additional spending for all state functions. On theoretical grounds, a federal grant to the state would be expected to have three effects: (1) an increment in state spending for state-operated programs, (2) an increment in state assistance to local governments, and (3) a reduction in state revenue effort (state tax relief).[4] Of course, the relative sizes of the three effects will be influenced by federal earmarking of grant funds and other aspects of the form of federal assistance. However, except in the limiting case of "airtight" enforcement of grant restrictions, there is likely to be some spillover to intergovernmental aid (and tax relief), even if the grant is nominally earmarked for a function that the state performs directly. In particular, a fraction of unrestricted federal aid to states (e.g., the state share of GRS funds) is likely to translate into increased aid to localities.

Fourth, federal aid funds that go directly to localities are likely to affect the states' aid-granting behavior. The reason is that state governments, in deciding on their own intergovernmental expenditures, almost certainly take account of the "needs" for financial assistance of the local units. If local governments are in favorable fiscal positions, there will be less incentive for states to raise their taxes to finance larger state aid payments to the local sector. Therefore, if increased direct federal aid is perceived by the state as making the local sector better off, the result may be a reduction in state aid or a smaller increase in state aid than would otherwise have been forthcoming. If federal aid were to decline, the states, seeing that local fiscal conditions have worsened, might be induced to make up part of the loss.

These interactions are illustrated by Fig. 4.3., which is a schematic diagram of the federal-state-local intergovernmental finance system. The figure distinguishes among three types of federal aid: aid to states for state-operated programs, aid to states for distribution to localities, and direct aid to local governments. The fiscal

[4] Additional possibilities, omitted to avoid overcomplicating the discussion, include a reduction in state borrowing and an increase in the accumulated surpluses of the state government.

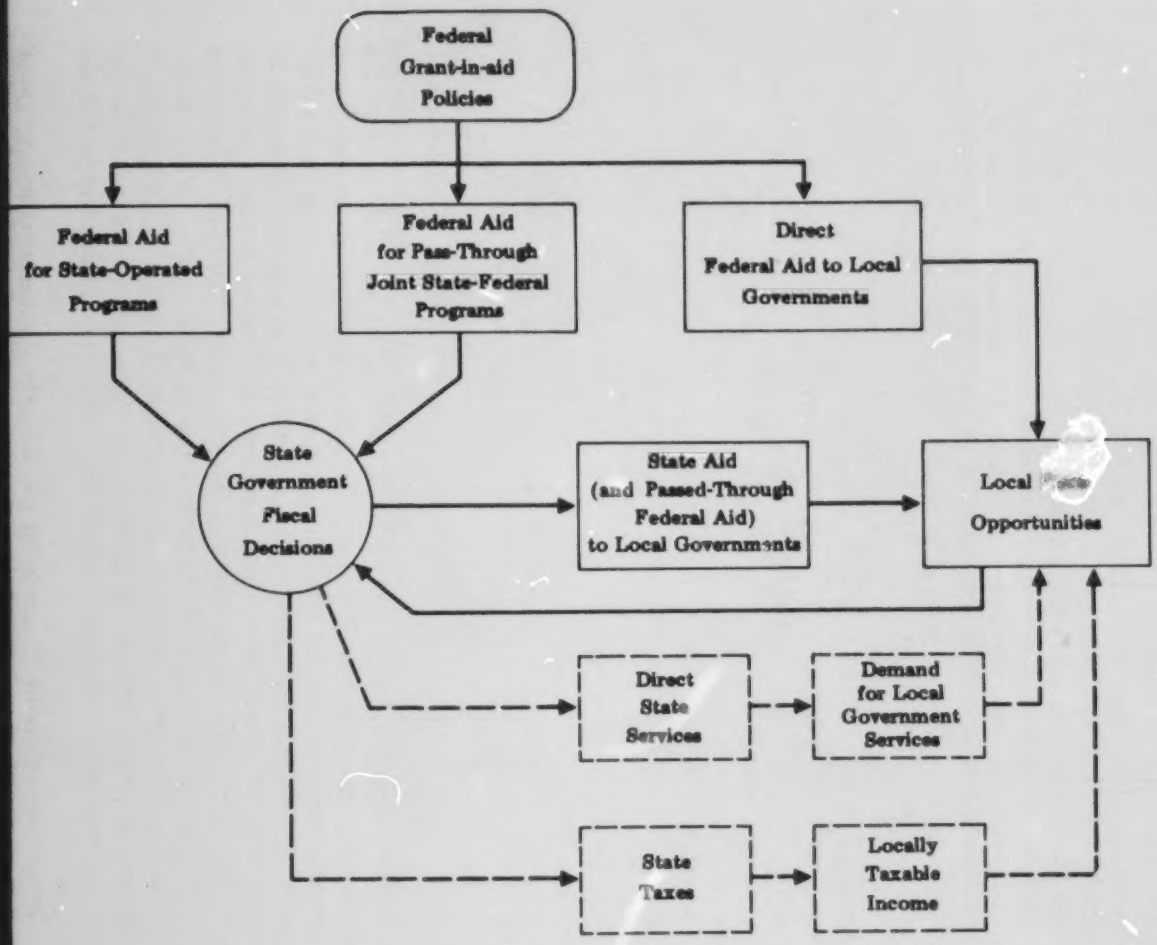

Fig. 4.3—The Federal-State-Local Fiscal System

decisions of state governments are influenced directly by the first two types and indirectly by the third type, as shown in the figure. Dashed lines indicate two other indirect channels by which federal grant policy may influence local fiscal conditions. The first is that an increase in federal aid to states may induce state governments to reduce their own taxes (or hold down tax increases), thereby making it easier for local authorities to levy taxes. The second is that increased federal aid may induce the states to provide more direct services to citizens, thereby reducing the service demands placed on local jurisdictions.[5]

The amount of empirical literature on the fiscal behavior of state governments is surprisingly small in light of the large amount of work that has been done on the determinants of expenditures of the state and local government sector. Nearly all that work (which is reviewed in Section VI) takes as the unit of analysis either the combined state-local sector within each state or the individual local jurisdiction. A handful of studies have looked at state government expenditures in isolation (Tresch, 1974; Sharkansky, 1967; Harlow, 1967; and Morss, Fredland, and Hymans, 1967). However, none of these empirical studies bears directly on the operation of the federal-state-local intergovernmental grant system. In every study, the dependent variables are expenditures by function (e.g., spending for education, health, or highways) without regard to whether the expenditures are direct or for intergovernmental grants. Therefore, no direct inferences can be made about the fractions of federal aid to states that translate into incremental aid to localities, direct state spending, and state tax relief.

The reason for the lack of empirical work in this area may be that the researchers who made the early attempts encountered serious problems. One major obstacle to analysis is inherent in the nature of the American federal system: The role of state government in relation to that of local government varies drastically from one state to another. As was shown in Table 3.8, the state share of combined state and local expenditure varies from 23 percent in New York to 79 percent in Hawaii. These disparities reflect large interstate differences in the range of service and financial functions performed by state governments. Most of the researchers cited above relied entirely on single-year cross-sectional equations for their estimates of the effects of federal aid and other factors on state spending. Naturally, a very large part of the cross-sectional variation was accounted for by differences in the scope of state responsibility. Therefore, the studies were able to explain little of the observed expenditure variation, and their estimates of the effects of federal aid were erratic and unreliable.[6] A second weakness of the studies is their failure to distinguish between lump-sum and matching grants to states. The distinction is important because of the prominence of matching provisions in federal aid for welfare and highway construction. A third problem is the failure to consider the simultaneous influence of state characteristics on both the level of state spending and the amount of federal aid. Because of these shortcomings, the studies yield little useful information about state government spending behavior and responses to federal grants. But even if these studies had otherwise been of the highest

[5] The latter possibility exists where state and local services are substitutes. For instance, greater state support for a state university and college system may reduce the demand for local financing of higher education and greater support for the major federal-state welfare programs may reduce the demand for locally supported general relief.

[6] For instance, multiple coefficients of determination are all less than 0.4 in Morss, Fredland, and Hymans (1967).

quality, the failure to distinguish between direct state outlay and state aid to localities would make them useless for tracing the effects of federal grants through the federal-state-local fiscal systems.

From the few studies of state behavior and the larger body of research on behavior of the combined state and local government sector, it is possible to draw only a few broad conjectures about state responses to federal aid. One suggestive finding from the state studies is that federal aid has a positive effect on state spending for education. This is significant because most state education spending, except for the operation of state higher education systems, takes the form of intergovernmental aid to local education agencies. Therefore, it can be inferred that federal aid affects the flow of state aid to local school systems. It is impossible, however, to determine the degree of substitution of federal funds for state education aid appropriations. A relevant finding from studies of combined state and local spending is that federal aid has a positive effect on spending for program categories in which federal money flows to states but the responsibility for provision of services is mainly local. These categories include education, welfare (in some states), and health services. There is, therefore, an implicit federal impact on state transfers of funds to the local level. Again, however, the empirical results cannot support conclusions about the magnitudes of federal grant impacts on the major state-level fiscal outcomes.

There are major gaps in existing empirical knowledge of how federal grants affect flows of funds within the federal-state-local fiscal system. To summarize, the important issues on which knowledge is lacking are (1) the effect of federal aid to states on levels of direct state spending, state aid to localities, and state taxes; (2) the differential effects of federal aid that is passed through to localities and federal aid for state-operated programs; and (3) the fiscal reaction of state governments to direct federal aid to localities. With all this information missing, there is no satisfactory basis for inferring the net amount of aid that will be received by urban local governments per dollar of federal aid to the state-local sector.

The Fiscal Implications of Grant Characteristics

The effects of intergovernmental grants on fiscal conditions of the aid-receiving jurisdictions depend on the form in which the aid is provided and the kinds of restrictions, or "strings," that are attached to the grants. Several aspects of the form of aid are relevant. First, it makes a difference whether outside revenue is provided as categorical grants for specific programs of projects, block grants for broad functions, or unrestricted, general-purpose assistance. Under some conditions, the more general types of aid may be more valuable to local governments, dollar for dollar, than grants whose uses are tightly constrained. Second, it may matter whether federal funds are distributed as formula grants, under which each grantee's aid entitlement is specified in law or regulations, or as project grants, which are allocated on a competitive or discretionary basis. Patterns of aid distribution, permitted uses of grant funds, and the duration and stability of aid are all likely to be different under the two systems. Third, intergovernmental aid may take the form of either lump-sum grants or open-ended or closed-ended matching grants. These have different effects on the fiscal opportunities of the grantees. Fourth, the fiscal effects of aid may depend on the specific constraints that the grant program imposes on the fiscal or resource allocation behavior of the recipients. Examples of

constraints include different forms of earmarking of funds (e.g., for specific projects, for certain groups of beneficiaries, or for the purchase of specified goods and services); requirements that grantees use federal aid only to "supplement" the local funds that "would have been" expended for the aided program, and requirements that grant funds be expended according to federally approved program plans. These "strings" can materially affect the utility of the federal grant to the local recipient.

During recent years, some fundamental questions have been raised about the form of federal aid to state and local governments. In response to the proliferation of grant programs during the 1960s, there have been proposals for shifts away from highly specific forms of categorical aid toward general-purpose financial assistance and block grants. An emphasis on the latter two types of aid was the main theme of the "New Federalism" policy enunciated by the Nixon Administration and pursued under President Ford.[7] Although many elements of the New Federalism were rejected by the Congress, several elements were enacted. They include the GRS program, the block grants provided under the Comprehensive Employment and Training Act (CETA), Community Development Block Grants (CDBG), and other block grants in the fields of law enforcement and social services. Debate continues over block grant and grant consolidation proposals in such fields as education, health, and transportation.

Categorical Grants, Block Grants, and Revenue Sharing. Choices among these three major grant forms may affect urban jurisdictions in two ways: First, the form of aid may determine how much control the local government has over the use of federal aid funds, and, therefore, how much of a contribution the aid makes to the city's fiscal condition. Second, the share of federal aid that goes to cities may be affected by the choice of one form of aid or another. Despite the large amount that has been written on both these topics, reliable empirical findings about the effects of changes in grant policies are in short supply, partly because the shifts to block grants and revenue sharing have been recent. Analysis of these aid issues must be based primarily on indirect evidence and theoretical inference.

The fiscal control issue appears, at first, to be straightforward. It seems evident that a city can use GRS or block grant funds more flexibly than categorical funds and, therefore, that the former make a greater contribution to its fiscal well-being. However, the bulk of empirical evidence suggests that the categorical grants are not nearly as restrictive as the complaints of grant recipients and the wording of the federal legislation would imply. Two kinds of studies are germane: First, there are evaluations and audit reports for particular federal programs. Such studies have shown that there is a general tendency for supposedly earmarked funds to "leak" from the designated program to other local programs, or, in some cases, to local tax relief.[8] Second, there is the econometric literature on fiscal impacts of

[7] The main thrust of the "New Federalism" was to devolve decisionmaking power to the states and localities, specifically by reducing reliance on categorical grants for social programs and replacing them with general assistance and broad block grants (the latter labeled "special revenue sharing"). These proposals were introduced as a package in the 92nd Congress.

[8] This leakage phenomenon is especially well documented in the field of compensatory education, which the federal government supports with grants under Title I of the Elementary and Secondary Education Act of 1965 (see e.g., Washington Research Project, 1969, and Wargo et al., 1972). More recently, findings concerning leakage from the Community Development Block Grant (CDBG) program have been reported in Nathan et. al. (1977).

grants-in-aid. These studies (which are reviewed in Section VI) confirm that at least some federal grant funds are substituted for local funds and, in effect, converted into general-purpose revenue of the local government. Therefore, because the money provided under many categorical programs is already fungible to some degree, only a limited amount of additional allocative freedom would be enjoyed by localities if block grant and revenue-sharing programs replaced the remaining special-purpose aid.

It is likely, however, that the administrative requirements placed on local officials by the existing categorical grants would be simplified by a shift to block grants and revenue sharing. This has been emphasized in the polemical literature on "red tape" in the federal grant system, and was one of the main themes of the "New Federalism" proposals. The GRS program, in particular, has operated with an extraordinary small administrative apparatus and with minimal paperwork. The block grant programs have more substantial administrative requirements. Typically, they require local aid recipients to file plans and reports on uses of funds. In some cases, they impose procedural requirements on the fund allocation process at the local level. Even so, consolidation of multiple categorical grants into larger block grants undoubtedly has reduced the local administrative burdens because many of the individual superseded programs had requirements comparable to those now applicable to the entire block grant.

The fiscal control and administrative burden issues appear quite different from the federal perspective than from the local one. The evidence that some categorical grants are at least partly convertible to general-purpose aid at the local level suggests that federal funds may not serve their intended uses and beneficiaries and may not have the intended effects. Some consider proposals for grant consolidation and block grant programs as efforts to undercut national goals by diluting the ability of the federal government to control the uses of grant funds. This is an area of genuine federal-local conflict. What local officials see as burdensome restrictions, unnecessary "strings," and federally induced "distortions" of local priorities may appear at the federal level to be the minimum conditions necessary to ensure that the federal funds are used according to the intent of Congress. Although the recent trend has been toward fewer categorical grants and more program consolidation, there have also been demands for stronger measures to ensure compliance with grant conditions. The basic tension has not been resolved between the objectives of achieving local compliance with national goals and permitting localities to develop their own solutions to local problems.

The issues of grant form and grant distribution are closely linked. Where block grant legislation has been enacted, the result has sometimes been less money for large cities than would have been provided under the superseded categorical programs.[9] There are two reasons for this outcome: One is that the shift to block grants often constitutes a shift from project to formula grants as well. Under formula grants, each eligible jurisdiction is entitled to a predetermined amount of aid. Under project grants, jurisdictions compete by submitting proposals for specific projects. The federal aid-granting agencies select the "winners" on the basis of proposal quality, local need, and other criteria. Large cities are said to have enjoyed

[9] The evidence that this occurred when the CDBG program was enacted is presented in the subsection on "The Distribution of Federal Grants," below.

an advantage under the project grant system because of their larger and more expert technical staffs and their ability to employ full-time Washington representatives and "grantsmen." These advantages are eliminated by a formula grant system. The second reason is that the shift to a block grant program often means a shift to much broader criteria of need for assistance than were employed in the terminated categorical programs. This diffuses federal aid among a broader range of recipients (for further treatment of this point, see the discussion of "distribution of grant funds," below).

Matching Provisions. A recurrent issue of federal grant policy concerns the inclusion of matching provisions in grant legislation. Several rationales have been offered for matching requirements. From the federal perspective, the matching grant is a mechanism for providing partial support for a program that is presumably of both local and national interest, thereby ensuring local participation. Matching is also seen as a device for stimulating state and local effort for national priority programs. The view has often been expressed that grantees should "earn" their federal aid funds by exerting effort of their own for the aided activity. To the economist, matching constitutes a price incentive in favor of the aided activity. The locality must pay 100 percent of the cost of programs not eligible for federal matching funds but only a fraction of the cost of those that are eligible. Because the locality can operate the matched program at a lower "price," it is likely to provide more of the services covered by the matching grant than it would have if there had been only lump-sum assistance.

Some years ago, there was a vigorous argument in the public finance literature over the proposition that matching requirements "distort" local budgets. The distortion referred to was the alleged tendency of matching grants to attract local funds into the federally aided areas, drawing resources away from unaided state and local services. The empirical question of whether such "distortion" actually takes place was never adequately resolved, partly because of the difficulties encountered in treating matching provisions properly in econometric expenditure determinant studies.[10] It should be noted, however, that a shift of local funds from unaided programs to programs with federal matching grants is precisely what would be expected according to the price incentive rationale for matching aid, and what would presumably be desired by those who proposed matching grants as a method of stimulating support for national priority objectives.

Among the major federal grant programs, those with important matching requirements are the highway construction and water and sewer construction programs and the major public assistance programs, Aid for Families with Dependent Children (ADFC) and Medicaid. The matching provisions of AFDC and Medicaid are open-ended; i.e., the federal government pays a certain share of the benefits for each eligible recipient. The matching provisions of the construction grant programs and most other federal programs that require matching are closed-ended. Each state or locality is entitled to a certain fixed amount of federal aid and must make a certain contribution as its share. In many cases, state and local spending for

[10] It was the practice in most early expenditure determinants studies to treat the amount of external aid as an independent variable in explaining spending, regardless of the form in which the aid was provided. Around 1968, it became established in the theoretical literature that the appropriate way of handling matching grants is to treat the matching *rate* as the explanatory variable. However, there is still a gap between theory and practice on this point. See Section VI for further discussion and references.

activities aided with closed- ended grants substantially exceeds the amount required to earn the full amount of federal assistance; therefore, additional state effort is not rewarded by additional federal aid. It is mainly in the welfare area, where matching grants are open-ended, that federal matching grants would be expected to draw in state and local funds that otherwise might be allocated for other purposes. Depending on one's point of view, this may constitute a distortion of state and local budgets in favor of public assistance or a desirable outcome of a federal effort to direct resources to redistributive welfare programs.

One feature of the shift from categorical to block grant programs has been the elimination of matching requirements in certain areas. This is especially true of the community development block grants, which replaced the Urban Renewal and Model Cities programs and several other categorical grant programs with matching requirements. However, there is no logically necessary association between block grants and the absence of matching provisions. It would be perfectly feasible to have an unrestrictive block grant program in an area such as education, health, or transportation, and to require state or local matching of the block grant funds.

Grant Provisions and Local Budget Constraints. There has been considerable research on how different forms of aid and different kinds of grant constraints affect the fiscal opportunities and fiscal behavior of grant recipients. The single issue that has received most attention is the difference between the fiscal effects of matching and lump-sum grants. There has also been some work on the effects of various constraints on uses of funds, although this has focused on the effects of categorical earmarking per se, and not on the more specific types of restrictions, such as maintenance of effort provisions, which often are attached to federal grants.

At a theoretical level, the effects of different forms of grants are well understood. Empirical information is relatively scanty, partly because of technical econometric problems, but also because little information has been compiled on how the different types of grant provisions are actually applied and enforced. In considering how the form of aid affects fiscal choices at the local level, it is important to distinguish between the effects that the aid constraints could have in principle—i.e., if fully implemented and enforced—and the effects that they actually have, given the way they are actually administered.

The early theoretical work on the effects of grant form was developed graphically, using methods analogous to the "indifference curve" approach to the analysis of consumer demand. The first study of this type appears to have been that of Scott (1952), which used diagrams to illustrate the effects on grantees' budget constraints of several types of grants, including matching grants with and without aid ceilings. Virtually the same diagrams have been used in articles on grants economics ever since. Studies that elaborated the indifference curve method of analysis include Haskell (1964) and Williams (1963). Williams showed that similar methods could be used to study the effects of grants on both the determination of total spending by a local government and the division of local resources between different functions.

More recent and more elaborate graphical analyses include those of Wilde (1968, 1971) and Inman (1971). Wilde uses diagrammatic methods to examine the effects of various combinations of matching and nonmatching and general-purpose and categorical grants, incuding complex variants such as categorical matching grants with ceilings. He seems to have been the only author to diagram the effects

of such specific constraints as maintenance of effort provisions. Inman has presented an elaborate diagrammatic analysis that deals simultaneously with the effects of different types of grants on the levels of total spending and taxes of a local jurisdiction, the mix of services provided by the jurisdiction, and the choice of revenue sources (both taxes and debt) by the jurisdiction. Other elaborations of the graphical approach have been provided by students of school finance, who found the indifference curve approach useful for analyzing the effects of various proposals for school finance reform (Wilensky, 1968; Barro, 1974b; and Hartman and Reischauer, 1974). The latter two studies used fiscal opportunity diagrams similar to those presented in Section III to examine the options available to differently situated school districts under alternative formulas for distributing intergovernmental aid for public education.

The most important recent advances in the economic analysis of grants-in-aid have been made by authors who present explicit mathematical models of the budgetary behavior of local governments. An essential part of each such model is a mathematical statement of the budget constraint facing the locality. The form of the constraint depends not only on the availability and form of outside aid, but also on the other fiscal opportunity factors discussed in Section III. The mathematical approach is able to capture the effects of and interactions among many more variables than can possibly be represented in two-dimensional diagrams.

The pioneering mathematical studies of grant effects and local budget constraints are those of Gramlich (1968, 1969) and Henderson (1968). Both authors formulated the grant impact problem in terms of local choices between public services and private goods. Neither analyzed the form of outside aid in any detail. Nevertheless, the analytical method that they presented eventually proved useful for analysis of a wide variety of grant types, and it had the decisive advantage over the graphical method of yielding precise, empirically testable propositions about grantee responses.

Subsequent mathematical analyses of grants have attended to the form of aid in more detail, allowing for a variety of grant forms and constraints. Gramlich and Galper (1973) examined the effects of three forms of federal aid on spending by the state-local sector—open-ended matching grants, unrestricted lump-sum transfers (general aid), and close-ended categorical grants. Inman (1971), in the mathematical analysis that accompanies his graphical work, differentiated among lump-sum grants and open-ended and closed-ended matching grants and took account of such factors as tax deductibility and tax exportation, which have been omitted from most other analyses of the local budget constraint. Inman's model provides a framework for analyzing the effects of many forms of federal and state influence on local government budget constraints. It is fully compatible with the concept of the fiscal opportunity schedule, as described in Section III, and the more detailed mathematical statement of the budget constraint that appears in the appendix.

Writers on school finance have had special motivation to consider the complexities of intergovernmental aid because many existing and proposed state school aid plans contain multiple constraints, nonlinearities, and other special provisions. Some of the theoretical and econometric studies of school spending devote considerable effort to representing the budget constraints that result from these complex aid systems (Grubb and Michaelson, 1974; Stern, 1973; and Barro, 1974a). Some of the technical issues addressed in the school finance work—e.g., the representation

of grants that have floor and ceiling provisions, variable matching rates, and multiple adjustment factors—are also relevant in connection with grants to cities and other general-purpose local governments.

There are obstacles to carrying out empirical analyses of the effects of grants on local budget constraints even though the theoretical framework is well developed. The problems are illustrated by the empirical portion of Inman's 1971 study. To perform a cross-sectional statistical analysis of the expenditure behavior of municipalities in response to grants, Inman found it necessary to examine painstakingly both the expenditure patterns and the grant receipts of each local jurisdiction in his sample. The reason is that the character of a grant sometimes depends not only on the form in which aid is offered, but also on the grantee's behavior. In particular, closed-ended matching grants, which are the mainstays of several federal programs (e.g., highway construction grants) have the effect of matching grants when they are less than fully utilized, but the effect of lump-sum grants when the grantee receives the maximum permitted amount of aid. Considerable effort is required to collect and analyze the program-by-program data for each jurisdiction. It is doubtful that such an analysis would be feasible in the context of a large, comparative study of cities or metropolitan areas. Therefore, even though the conceptual apparatus is available for a full analysis of federal grant impacts on local fiscal opportunities, it would probably be necessary, as a practical matter, to work with approximations of each locality's budget constraint.

The Distribution of Federal Grants

The fiscal impact of federal aid on the urban public sector depends on how the grants are distributed among localities as well as on the form in which the aid is provided. The relevant dimensions of grant distribution include the per capita shares of different regions of the country, different classes of jurisdictions (cities, counties, school districts), and jurisdictions with populations of different sizes. Different federal grant programs have produced widely differing distributions of aid: A few programs, such as Urban Renewal and Urban Mass Transportation, have been concentrated in the major urban centers. Others, such as the economic development grants of the Commerce Department (Economic Development Administration) and grants for construction of water and sewer systems, have been tilted toward rural or suburban areas. Some programs have yielded aid distributions that are skewed toward certain geographic regions—e.g., the GRS program, which provides more aid per capita in the South than elsewhere, and federal highway programs, which channel the most funds per capita to sparsely populated states. To understand how these variations arise and how they reflect policy choices at the federal level, it is necessary to go beyond the dollar distributions and to examine the mechanisms by which federal aid is allocated among state and local jurisdictions.

The distribution of funds under a federal grant program depends on policy decisions about the classes of jurisdictions eligible for funds and the formula for distributing funds among eligible governments (or, in the case of project grants, the selection procedure and criteria to be used in choosing grantees). Usually the eligibility rules and allocation mechanisms reflect the purposes of the grant in a reasonably straightforward manner. For instance, federal compensatory education

funds are distributed among local education agencies according to numbers of economically disadvantaged pupils, and federal block grants for community development are distributed among large cities and urban counties according to a formula that includes poverty and overcrowded housing. It is rarely the case, however, that a program's objectives dictate a particular choice of distributive mechanisms. Almost always, there are many alternative sets of allocation rules that are arguably consistent with the federal purpose. Thus, there is ample room for policy choices to be made that are explicitly distributional in character. These decisions can substantially affect the grant allocations to different types of jurisdictions and to more urbanized and less urbanized areas. To pursue the foregoing examples, the goal of compensatory education implies that funds should be distributed according to some concept of educational disadvantage but not according to any particular definition. Allocations of funds, especially to urban areas, are sensitive to the definition that is chosen and to such related distributional issues as whether geographical variations in educational costs are taken into account.[11] Similarly, the purpose of the CDBG program implies that eligibility should be limited to large urbanized jurisdictions but there is nothing about the program goal that dictates a particular population cut-off. Distributional outcomes under the program depend strongly on whether the threshold is set at 50,000, 100,000, or 250,000 people and on such related issues as whether suburban counties, as well as cities, are eligible for funds. In sum, the fiscal impact of federal grants on the cities depends on a number of fairly detailed decisions about the allocation procedures to be used in the individual aid programs.

To examine the distributional aspects of federal grants in more detail, it is helpful to distinguish among the following classes of aid programs: (1) general-purpose assistance, (2) grants that provide benefits or services for specific target groups of people, and (3) grants for construction of public facilities. Not all grants can be categorized under these headings, but the three classes account for the bulk of current federal aid.

General-Purpose Assistance. The primary distributional characteristics of the GRS program, the main form of general-purpose federal aid to states and localities, are (a) near-universal coverage—all states and all but the tiniest general-purpose local governments are eligible and (b) allocation of funds according to very broad criteria—the principal factors in the formula being population, per capita income, and tax effort. These characteristics lead to a relatively undifferentiated distribution of GRS funds among localities and to a distribution that bears little relationship to any measure of fiscal stringency or "need" for financial assistance. Some affluent suburbs receive per capita allocations of the same order of magnitude as some hard-pressed central cities. In addition, as previously noted, the effect of the per capita income factor in the formula (unadjusted for cost of living variations) is to favor states and rural areas in the South. This is offset only in part by the tax effort factor, which tends to favor more urbanized areas. A formula containing specific measures of fiscal or economic decline would produce a distribution more favorable to urban regions and to the urban centers within each state.

Grants Aimed at Specific Target Groups. This category contains many of the largest federal grant programs, including grants for major national transfer

[11] For a detailed analysis of the sensitivity of the distribution of compensatory education funds to alternative definitions of poverty and alternative cost factors, see National Institute of Education (1977).

payment programs, such as AFDC and Medicaid. It also includes programs that provide services or in-kind assistance to specified target groups, such as aid for education of the disadvantaged and handicapped, employment and training programs under CETA, aid for state social services programs, and grants for housing assistance. Under most of these programs, federal funds flow initially to the states. In some instances, pass-through requirements control the subsequent distribution to localities, with varying degrees of distributional authority being retained by the state agencies. Under the major transfer payment programs, each state has the power to determine what financial and administrative responsibilities, if any, will be delegated to local jurisdictions. Some states operate their AFDC programs directly, while others pass on the administrative responsibility, together with varying fractions of the financial responsibility, to counties or, in a few cases, to municipalities.

The most important characteristic of the interstate distribution of federal funds under these programs is that allocations depend on the number of people in the designated target group, or on the number of people actually served. To a certain extent, therefore, the distribution of funds can be considered "natural": It reflects the interstate distribution of the people at whom the federal program is aimed. However, this is subject to a number of major qualifications. First, there is the question of how the target group should be defined. Both interstate and intrastate distributions of funds can be affected substantially by changes in the definition of who is eligible for program benefits. Major distributional consequences often hinge on such technical issues as whether cost of living differentials are taken into account in defining the family poverty level in each state. Second, many programs, including the large national transfer payment programs, provide state governments with the right to define both individual eligibility for benefits and the level of benefits per eligible person. Differences in eligibility standards affect the distribution of federal money. Moreover, differences in state-established benefit levels may also affect the distribution of federal aid because federal grants under such programs as AFDC and Medicaid are distributed so as to match the contributions from state and local sources. Third, because of the design of the federal welfare grant programs, there are large interstate disparities in benefit levels (i.e., total payments to eligible individuals from combined federal, state, and local funds). Federal AFDC funds, for example, distributed according to a matching formula under which the amount of federal aid per recipient is subject to a relatively low ceiling. States that want to pay higher benefits must do so entirely at their own expense. What happens in practice is that the industrialized states in the North pay high benefits, supplementing the federal matching program with their own funds, while states in the South pay much lower benefits—not even enough, in some cases, to exhaust their federal matching grant entitlements.[12] Thus, there are much greater interstate disparities in total costs per program participant than in the amount of federal aid.

It is impossible to generalize about the intrastate distributions of aid under the transfer payment programs because of the freedom given to state governments to determine the roles of local jurisdictions. In many states, AFDC and other major

[12] Currently, there is a dual distribution formula in AFDC, under which the matching grants are open-ended for most states but closed-ended for certain low-benefit states (Hamilton and Rabinovitz, forthcoming). Formerly all states operated under the closed-ended formula, but it was mainly low-benefit, southern states that failed to exhaust their federal aid entitlements (Sloan, 1972).

welfare programs have no direct effects at all on local budgets because the full responsibility for program administration and financing is assumed by state agencies. In other states, large amounts of federal and state aid flow to local authorities to support those programs. For reasons explained earlier, it is difficult to sort out the separate effects of federal aid and state aid on local budgets. What matters to a locality is the level of combined support from both state and federal sources, as compared with the total cost to the local government of fulfilling its program obligations. Typically, local responsibility for welfare functions entails a net fiscal burden on the local taxpayers—i.e., state and federal aid does not cover the cost of the program; a certain percentage must be financed from local sources. A detailed analysis of the highly uneven distribution of local fiscal burdens created by this nonuniform welfare system is presented in Hamilton and Rabinovitz (forthcoming). The subject is pursued further in the discussion on local fiscal responsibility, later in this section.

Grants for Construction of Public Facilities. The major programs that fall under this heading include grants for construction of highways, airports, rapid transit systems, water and sewer systems, pollution control facilities, and other public works. The CDBG program probably should also be included in this category because most funds provided under the program are used for investment in one form or another of physical development.[13] The purposes of these grant programs are diverse, as are the methods prescribed for distributing funds. Nevertheless, a few cross-cutting themes emerge concerning the effects of these programs on more urbanized and less urbanized parts of the country.

First, the question of jurisdictional eligibility for grants is important. A number of the major capital construction grants are earmarked for jurisdictions of certain types and certain minimum sizes. Policy decisions about the eligibility limits can have important distributional effects. A notable case is the CDBG program, in which a number of large suburban counties that did not qualify for funds under the categorical programs that preceded CDBG became eligible for the new block grants. The effect was to disperse the available funds over a broadened stratum of eligible localities. Were it not for a "hold harmless" provision in the law, central cities would have lost substantial amounts of aid, compared with what they would have received under the categorical programs. The hold harmless feature had been scheduled for phasing out beginning this year, at which time funds would have begun to flow away from the older central cities. However, Congress has just revised the allocation formula (although not the eligibility rules) to prevent this antiurban shift in the distribution pattern.[14] Eligibility decisions are likely to have equally potent effects in connection with other grants directed to large population

[13] According to the law, CDBG grant funds may be used to accomplish a variety of "national objectives," most of which imply physical reconstruction and infrastructure services. In their evaluation of the fiscal impact of CDBG in its initial phases, Nathan et al. (1977) found that most grant funds were used either to support new capital outlays or to maintain spending for existing physical development projects.

[14] The revision consists of adding a second formula to the original CDBG distribution formula and allowing each grantee to receive the amount of aid indicated by the more favorable of the two. Under the original formula, which takes account of population, poverty, and overcrowded housing, cities would have lost substantially with the phase-out of hold-harmless provisions. The new formula, which distributes funds according to poverty, population decline, and the proportion of pre-1939 housing in a locality, prevents most of these losses and channels more aid to central cities, and to the Northeast generally, than was received under the old formula.

centers, such as grants for construction and operation of mass transit systems and pollution control facilities.

Second, under some capital construction grant programs, funds are allocated according to broad criteria or measures of need, even where the program objectives are relatively specific. For instance, funds for the basic federal highway construction program (known as the "ABC" program) are distributed according to population, geographical area, and the number of postal route miles in each state—not according to measures of actual or potential highway use or need for improved road transportation, as indicated by, for instance, travel time, congestion, or adequacy of the existing road network (Enns, 1974). Similarly, the CDBG program allocates funds according to a formula that includes population, poverty, and overcrowded housing but not explicit indicators of need for urban development, such as the condition of the existing stocks of public and private capital. Using general rather than specific need indicators often seems to have an antiurban effect. That is, highly urbanized states and large cities would fare better if more specific need indicators were used in the allocation formulas. In particular, inclusion of a population factor in aid formulas always has a leveling or spreading effect on the distribution of funds; inclusion of per capita income or poverty as a factor (unadjusted for interregional cost differences) usually tends to favor southern states and less urbanized areas.

Third, grants for capital construction are more likely to take the form of project grants than are grants in the other categories. This is especially true of grants that support "one of a kind" projects for an area—mass transport systems, pollution control systems, and water and sewer projects. The granting agencies have more discretion over these grants than other types of aid: specific projects and plans must be approved, even where a jurisdiction is entitled to funds under a legislated formula. Moreover, in many instances there is no formula. The distribution of program funds is determined under a competitive process, where it may be influenced by a variety of technical and political criteria. There is a question of whether the greater discretion available to federal agencies under project grant programs helps or hurts the more urbanized areas. It has been argued, on one hand, that large cities tend to do better under project grants than formula grants because of their greater access to technical expertise ("grantsmanship"). On the other hand, it is not clear how the cities fare in the Congressional "pork barrel" competition for projects since, historically, they have been at a relative disadvantage in terms of the power of their Congressional representation.

Grant Distribution as an Instrument of Urban Policy. The distributional provisions of grant programs could be used as tools for altering the fiscal conditions of cities if federal policymakers were so inclined. There are a number of specific kinds of changes in grant allocation mechanisms that would tend to exert a "pro-urban" influence—i.e., they would either shift funds toward the more urbanized states and regions or toward the more urban jurisdictions within each area. The pro-urban changes explicitly identified or implied by the foregoing discussion include the following:

- Insertion of cost adjustment factors into grant allocation formulas.
- Use of more specific need measures in grant formulas (especially formulas for allocating capital construction funds).

- Use of explicit measures of local fiscal distress, such as the indices of fiscal condition suggested in Section III (especially in formulas for distributing general-purpose aid).
- Consideration of the overall revenue effort of local jurisdictions, not only the effort exerted to support the particular program aided.
- Narrowing of eligibility criteria under programs directed at large urban areas to minimize diffusion of funds to jurisdictions with less concentrated needs.

The relevance of all these approaches has been recognized by spokesmen for urban jurisdictions, and many specific proposals embodying one or more of the changes have been offered. Two noteworthy recent instances in which the urban effects of distributional changes were considered are the 1976 debate over renewal of GRS, in which most pro-urban proposals were rejected,[15] and the recent debate over reauthorization of the CDBG program, as explained earlier (see fn. 14), a result of which a major pro-urban alteration of the formula was accepted by the Congress. Other important debates about the urban aspects of grant distribution can be expected in the near future, notably in connection with the Administration's proposals for welfare reform.

A final point about grant distribution concerns an issue that is as yet hypothetical: What would be a reasonable method of allocating funds under an explicit program of aid for fiscally distressed localities if either the Administration or the Congress became interested in pressing for such a program? Although both the GRS program and the more recently enacted countercyclical programs of Antirecessionary Fiscal Assistance (ARFA) and Public Service Employment can be considered as programs aimed at alleviating state-local fiscal problems, none of these programs allocates funds according to an explicit measure of fiscal conditions.[16] The issue of how that might be done has not yet been dealt with at the policymaking level. Many of the issues bearing on measurement of the severity of local fiscal problems were analyzed in Section III. The principal points that pertain to the design of a federal urban aid program are the following: (1) One-dimensional measures of fiscal strain, such as deficits, rates of revenue effort, or levels of per capita spending, are likely to be misleading and will yield inequitable results if incorporated into aid formulas. (2) An adequate measure of fiscal condition should take into account both an area's fiscal resources and its needs for public spending and should represent the balance between the two. (3) A basic policy choice must be made between measures of fiscal stringency that emphasize the relative fiscal condition of a jurisdiction at a given time and those that represent changes in a jurisdiction's position over time. The former would allocate federal funds to cities that are relatively poor; the latter would favor cities that are fiscally declining. These are not the same sets of cities.

The Long-Run Effects of Federal Grants

This discussion has addressed only the short-run budgetary effects of intergov-

[15] For a discussion of the 1974-76 debate over the renewal of GRS and an analysis of the political context, see Nathan and Adams (1977).

[16] The antirecessionary programs distribute funds accordng to various indicators of the severity of state and local unemployment. For descriptions of these programs, see CBO (1977c).

ernmental grants—their contributions to local revenue and the concomitant expenditure obligations that they impose on the grantees. However, the urban impacts of federal (and state) grants extend beyond their immediate fiscal effects. Grants not only affect the budget, they affect the level and mix of services offered by local governments. Because external aid is available, localities provide more services or build more public facilities than they would have otherwise. Because much federal aid is categorical, the grantees may provide services of different types (and to different people) than the local authorities would have chosen themselves. Federal grant programs have influenced the design of urban transportation systems (both highways and mass transit), the adequacy of local public infrastructures (especially water and sewer systems), the levels of welfare payments and other cash and in-kind transfers in each area, and the quantity and quality of many types of urban social services. As reported in the *Economic Development* and *Population and Residential Location* reports, interjurisdictional variations in these grant-financed services and facilities have created significant locational incentives for both businesses and households. They have been the major instruments for implementing the substantive federal policies that have done so much during recent decades to influence patterns of suburbanization and interregional migration. Moreover, there is a feedback loop in the system: Grants affect fiscal conditions in the local public sector; fiscal conditions affect the level and mix of services; the level of services affects the locational decisions of households and firms; and those decisions affect the local tax base and the demand for public services, which are themselves major elements of the local fiscal condition.

The short-run budgetary impacts and the longer-run locational impacts of grant programs may work either in the same or in opposite directions. An example of mutually reinforcing short-run and long-run effects is that federal grants for economic development projects (including human resource development) will, if successful, generate permanent increases in private investment and employment, and hence in the local tax base. The local grantee enjoys both the immediate benefit of the grant funds and the longer-term benefits of economic growth. It is also possible, however, for a grant-aided program to create fiscally adverse, long-run locational incentives. A number of possibilities have been cited in the residential and business location literatures. Increased grants for welfare programs and related social services may relieve local budgets in the short run but may attract so many new applicants that greater burdens are created in the future. Grant-financed highway construction projects may attract so much extra traffic that urban congestion is worse after the "improvement" than before. Support for low-income housing may augment revenue and employment in the short run, but may add to the population of low-taxpaying, high service-consuming households once the housing units are occupied. The attractiveness of grants to hard-pressed local officials is such that it is difficult to draw their attention to adverse long-run consequences, much less to induce them to forego programs that may, after all, not have the hypothesized unpleasant aftermaths. A major contribution to more comprehensive urban policy-making at the federal level would be to give fuller consideration to the long-run locational effects as well as to the short-run fiscal benefits of grant programs. As it is, there is a tendency in times of fiscal stress to emphasize the latter exclusively, with the result that unanticipated and unwanted locational effects can result from supposedly pro-urban federal assistance.

FEDERAL TAX EXPENDITURES ON BEHALF OF LOCAL GOVERNMENTS

Recent research on the federal tax system has drawn attention to the importance of "tax expenditures" as devices for allocating resources and providing incentives for various kinds of economic behavior.[17] As defined by the Congressional Budget Act of 1974,[18]

> . . . tax expenditures are revenue losses attributable to provisions of the federal tax laws which allow a special exclusion, exemption, or deduction from gross income or which provide a special credit, a preferential rate of tax, or a deferral of tax liability . . . .

Tax expenditures are viewed as exceptions to the "normal structure" of the tax system, designed to favor certain groups of taxpayers or certain lines of economic activity. As such, they are alternatives to direct federal expenditures. Rather than make subsidy payments to firms in a given industry, for example, the government may allow special tax credits. It is possible to design tax expenditure provisions that have precisely the same economic effects as direct outlays for a particular purpose.

According to an analysis by the Congressional Budget Office (1976), federal tax expenditures totaled $106 billion in FY 1976, or approximately 25 percent of budgeted expenditures. The bulk of this amount is accounted for by various benefits for businesses (e.g., more than $8 billion in investment tax credits) and for consumers (e.g., exclusion from income taxation of a variety of retirement and medical benefits). A significant fraction provides fiscal benefits to the state and local government sector. These federal tax expenditures on behalf of the public sector are of two kinds: (1) the reduction in the federal tax liabilities of individual state and local taxpayers due to the deductibility of state and local taxes from federally taxable income, and (2) the reduction in the federal income tax liability of holders of state and local bonds stemming from the tax-exempt status of municipal bond interest. According to the President's budget, total tax expenditures in these two categories are estimated at $16.2 billion for FY 1977. A breakdown of this figure is presented in Table 4.7.

Why do these federal tax deductions and exemptions for individual taxpayers constitute fiscal benefits for the state and local government sector? Clearly, the benefits accrue in the first instance to the households or business firms whose tax liabilities have been reduced. As the President's budget states,[19]

> The benefits of tax expenditures designed to encourage certain types of economic activity typically do not rest fully or even mostly with the corporations or individuals whose taxes are initially affected.

The advantage to local governments of deductibility of locally imposed taxes takes the form of a reduced burden on individuals and firms of taxes imposed at the local level. If there were no deductibility, each dollar of local government tax revenue would correspond to a one dollar reduction in personal or business income. With deductibility, the income reduction is less. If a person pays a marginal federal

[17] For a general discussion of the tax expenditure concept, see Surrey (1973).

[18] Cited in *Budget of the United States Government, Fiscal Year 1977, Special Analyses*, "Special Analysis F, Tax Expenditures," p. 116.

[19] Ibid.

Table 4.7

Federal Tax Expenditures on Behalf of State and Local Governments—
Estimates for FY 1977
($ millions)

Type of Tax Expenditure	Reduction in Taxes of Individuals	Reduction in Taxes of Corporations	Total Tax Reduction
Deductibility			
Nonbusiness state and local taxes (other than gasoline taxes and property taxes on owner-occupied homes)	8,095	--	8,095
Property taxes on owner-occupied homes	4,500	--	4,500
Nonbusiness state and gasoline taxes	795	--	795
Exclusion of interest			
General state and local debt	1,680	3,105	4,785
State and local industrial development bonds	90	195	285
State and local pollution control bonds	75	170	245
Total	15,235	3,470	18,705

SOURCE: *Special Analyses, Budget of the United States Government,* Special Analysis F, Tax Expenditures, Washington, D.C., 1978.

income tax rate of 25 percent, it costs him only 75 cents to pay one dollar in taxes to his municipality. The remaining 25 cents is the federal tax expenditure. In effect, the price of local services to this individual has been "discounted" by 25 percent. This is likely to increase the quantity demanded of local public services relative to other public and private goods. Similarly, the exemption of municipal bond interest from federal income taxation makes municipal bonds of a given coupon rate more attractive than private sector bonds bearing the same rate. A person in the 50-percent federal income tax bracket is as well off with a tax-exempt municipal bond paying 5 percent as he or she would be with a corporate bond of similar quality paying 10 percent. Therefore, local governments are able to borrow at much lower interest rates than would be possible if the interest payments were taxable to the recipients in the same manner as other income.

The effects of tax expenditures on the budget constraints of local governments have been analyzed in Inman (1971). The pertinent concept in Inman's model is the "burden price" associated with a given source of local revenue. This is simply the fraction of each dollar of local revenue that is actually paid by the local taxpayer after the benefits of deductibility are taken into account. Inman shows that the effect of deductibility on the local budget constraint is similar to that of an open-ended matching grant to the local jurisdiction.

In general, the burden price can be different for each revenue source used by a local government. For instance, the effective burden of state income tax payments is reduced by their deductibility from federally taxable income; however, the effective burden of local property tax payments is reduced by their deductibility from both federal and state taxable income (assuming the state has an income tax). The availability of tax deductions may create certain incentives for localities to employ one tax rather than another, as well as an incentive for them to increase the aggregate level of taxation. Similarly, the availability of tax deductions for municipal bond interest is likely to affect the propensity of the locality to rely on debt financing, relative to other methods of raising revenue.

Special attention should be given to the distributional implications of federal tax expenditures on behalf of local governments. The value of the deductions for local taxes and bond interest to the taxpayers of a community depends on their marginal federal (and state) income tax rates, which, in turn, depend upon their taxable incomes. The higher the level of income in a community, the greater the "discount" stemming from deductibility. Moreover, a factor that magnifies the positive association between community income and the size of the discount is that only the 30 percent of taxpayers who itemize deductions on their federal income tax returns can profit from the deductibility provisions. The proportion of taxpayers who itemize rises sharply with income. Therefore, the per capita federal subsidy that a local government receives because of tax expenditures is strongly and positively related to the income level of the locality's taxpayers. The result is much the same as if the federal government were operating a system of matching grants to local governments, with the matching rate an *increasing* function of community wealth. It is unlikely that an overt subsidy program of that kind would ever be enacted but an essentially equivalent result has been achieved by the "back-door," tax expenditure route.

Federal tax expenditures on behalf of state and local governments are not large relative to the more than $28 billion per year that the federal government distributes as grants-in-aid. However, a different comparison is instructive. The GRS program, enacted in 1972, was hailed as the first major federal commitment to general-purpose support of the state-local sector. That program distributes approximately $7 billion per year. The federal tax expenditures total more than twice as much—and all benefits therefrom are for use with no restrictions by state and local taxing jurisdictions.

FEDERAL POLICIES AND THE SCOPE OF LOCAL FISCAL RESPONSIBILITY

Local jurisdictions are "creatures of the states," whose powers and responsibilities for delivering and financing services are delegated to them by state constitutions and state laws. These delegations vary substantially among states, as was indicated by the statistics on relative state and local fiscal roles presented in Section III (Tables 3.8 and 3.9). Nevertheless, some decisions about local responsibilities are relatively standard. There is a body of so-called common functions (e.g., police and fire protection and sanitation), which in most parts of the country are performed by municipalities or, where there are none, by counties or other units of general-

purpose local government. In public education, the function that accounts for the largest share of state-local funds, there are two standard models: In most parts of the country, public schools are operated by independent local school districts but in a smaller number of states that responsibility is entrusted to "dependent" local school systems, which are components of counties or municipalities. The greatest variations exist in welfare: In some states, local jurisdictions are not involved at all in the financing or administration of welfare; in others, county governments assume the administrative responsibilities and some fraction of the financial burden; in a few important cases, city governments play a major role. Even under the "standard" arrangements, there are large variations in the degree to which state governments provide financial support for services that are produced and delivered by local jurisdictions. For analytical purposes, it is convenient to separate the question of grant financing from that of the responsibility for service delivery. This discussion is concerned primarily with the latter issue.

There are three ways in which the federal government can intervene to alter the scope of local responsibility for service delivery. One is by assuming added responsibility itself—that is, the federal government can undertake to provide a service that was formerly provided by localities or by the states. The second is by inducing state governments to relieve local governments of certain roles or functions, or at least of some part of the burden of financing them. The third is by inducing states to permit and encourage changes in the structure of local government, such as consolidations of local jurisdictions or shifts of fuctions from one tier of local government to another. These three possibilities are discussed under the subheadings below.

Federal Assumption of State and Local Responsibilities

The most clear-cut action that the federal government could take to provide fiscal assistance to states and localities is to assume responsibility for delivering a service currently delivered by lower-level governments. A decision to assume complete responsibility for a function transcends a decision to provide financial aid in one major respect: The former action settles the question of who will pay for program growth and cost increases in the future, whereas the latter leaves the question open and subject to annual Congressional decisions about the level of grant funding. There have been numerous proposals in recent years for federalization of welfare programs, most of which are now state-local programs partly financed by federal aid. Increasingly, the debate over these proposals has emphasized the fiscal benefits that they would provide to the state-local sector. There have also been major proposals for broadening the federal responsibility for provision of health care (mainly various forms of national health insurance), some of which would have major financial impacts on state and local governments. A third area in which an expanded federal role has been discussed is elementary and secondary education. In that area, however, direct federal assumption of responsibility is much less likely than federal efforts to encourage states to relieve the fiscal pressures on local school systems. Issues concerning federal involvement in all three areas are summarized below.

Federalization of Welfare. The main recent precedent for federal assumption of a major state-local responsibility is the federalization of certain welfare

programs that took place in 1974 under the rubric of the Supplemental Security Income Program (SSI). SSI replaced state-run programs for the disabled, blind, and aged and shifted the full cost of basic program benefits to the federal level. However, SSI cannot be characterized as a pure case of federal assumption. The law requires in some instances that states supplement the scheduled federal benefits in order to "hold harmless" the persons who received assistance under the superseded programs. In other instances, states may "voluntarily" supplement the federal benefits, and in fact, most states have chosen to do so. Therefore, although SSI exemplifies federal assumption in that the basic program is federally designed and administered, from a purely fiscal point of view it is a jointly financed state-federal program.

Recent proposals for welfare federalization have focused primarily on the AFDC program. This is the largest welfare program (assuming that Medicaid, which is now larger, is counted under the "health care" category). In 1975, total AFDC expenditures were $9.2 billion, of which 56 percent was financed by the federal government, 37 percent by the states, and 7 percent by local jurisdictions (Hamilton and Rabinovitz, forthcoming). If the states and localities had been relieved of their financial responsibilities for the program, the result would have been over $4 billion in fiscal relief for the state-local public sector. However, it is simplistic to assume that federalization would mean no more than assumption of the present state and local costs by the federal government. Federalization of AFDC is bound up with overall welfare reform. No federalization proposal is likely to be seriously considered that would leave the present benefit disparities in place and merely shift the program's financing to the national level. Also, simple federalization would have an extremely uneven distributional impact, and one that is unlikely to be politically acceptable. For both reasons, analysis of the present state and local contributions to AFDC is unlikely to provide an accurate view of the fiscal relief that would be provided by a viable form of federalization.

The most commonly discussed welfare reform proposals, including the recently unveiled Carter Administration plan, involve a nationally uniform, basic benefit schedule and eligibility standards with provision for state supplementation.[20] The two aspects of such proposals that are critical in assessing fiscal impact are (1) the levels at which federal eligibility and payment standards are set, relative to those now prevailing in the several states; and (2) the kinds of requirements, opportunities, and incentives that the program offers for state supplementation. If the basic federal benefit levels were set relatively high, the incentive for the present high-benefit states to supplement would be minimal. The result would be substantial fiscal relief for such states—which happen to be the large, industralized states in which urban fiscal problems are also concentrated. If the federal benefits were relatively low, however, those same states might be forced to maintain a substantial part of their present welfare spending just to prevent current beneficiaries from losing. There would then be relatively little fiscal relief to the more urbanized regions of the country. Any plan establishing a national benefit standard at or above the average benefit level under current state programs would provide large amounts of new federal money to the present low-benefit, primarily southern states. It seems unlikely that Congress would enact a plan involving full federal assump-

[20] For an analysis of recent welfare reform proposals, see Carcagno and Corson (1977).

tion of the costs associated with high-benefit AFDC programs in the urban Northeast, without making similar benefits available to poor people in other states; but it also seems unlikely that Congress would accept the cost of a high-benefit program for the entire nation. If this is so, then some role for state supplementation seems inevitable, which implies that the fiscal relief from federalization in the northern urban areas would be equal to only a fraction of current state-local costs.

The amount of fiscal relief that federalization would provide to cities and other local governments would depend on decisions made in each state about the division of the total fiscal relief between state and local jurisdictions. Hamilton and Rabinovitz (forthcoming) have shown that a full federal takeover of current costs would provide substantial amounts of aid to six major cities (Baltimore, Denver, New York, Philadelphia, San Francisco, and Washington, D.C.), to a scattering of smaller cities, and to certain urban counties (especially in New York and California). However, those places would realize their gains only at the sufferance of their respective state governments. The gains would be diluted if state governments cut back on their own aid to localities, if they imposed the costs of mandatory or optional supplementation on the cities, or if they reduced the taxing authority of the cities to a degree commensurate with the reduction in responsibility for financing welfare. The cities and urban counties that are not currently required to contribute to welfare programs would reap no direct benefits from federalization even if substantial burdens were lifted from their states. It is likely that some fraction of the state gains would eventually "trickle down" to such localities (see the discussion of the federal-state-local system, earlier in this section), but there is no way to estimate the magnitude of these indirect benefits.

There are additional complexities associated with welfare reform and welfare federalization proposals that could influence the state-local fiscal impact of federal action. One is that welfare reform is likely to take in more than AFDC. Other candidates for federalization include the nonfederal, supplementary portion of SSI; the various programs of in-kind assistance, including Food Stamps and Medicaid; and state-local "general assistance" programs, which now receive no federal aid. Inclusion of all these programs in a federalization package would have increased the potential amount of state and local relief to approximately $12 billion in 1975 (Hamilton and Rabinovitz, forthcoming). The costs of these other programs are not distributed among states and localities in the same manner as AFDC costs, so the choice of programs to include would have an effect on the distribution of fiscal relief. Another important possibility is that welfare reform will be linked with various job creation, training, and public employment programs. If so, it would be necessary to take account of both the direct costs and the indirect economic effects of those programs, including the effects on private sector economic activity and on numbers of welfare eligibles and applicants, to form a complete picture of the distribution of costs and benefits. A third possibility is that a program of federal welfare reform will include important changes in tax policy, such as a form of negative income tax for individuals or tax incentives for businesses that hire welfare recipients. All such options would have fiscal effects on state and local governments. Thus, although welfare reform could be an effective way to aid the urban public sector, the actual effects could be large or small, depending on the specific components of the reform plan.

Federalization of Health Care Programs. A national system of health care financing is not usually considered as a program of fiscal assistance to state and

local governments, but it seems to have at least as much potential to fill that role as does federalization of welfare. Table 4.8 indicates the amount of state and local spending for the "health and hospitals" function that could be displaced by a federal program and provides some gross fiscal comparisons with the public welfare function. The table shows that although state and local governments spend more for welfare than for health and hospitals (when Medicaid is counted as a public welfare program, as is Census Bureau practice), the amount of state and local spending *net of federal aid* is greater in the health category. Assuming that a comprehensive national health care system would take over much or all of Medicaid, it makes sense to add the Medicaid program to the health category. When this is done, the comparison becomes one-sided: State and local spending for public welfare programs other than Medicaid, net of federal aid, was slightly over $7 billion in 1975, compared to over $22 billion for an expanded health category defined to include Medicaid. It is unlikely that either federal welfare reform or a national health care system would supplant all state and local spending in its repective functional area. Nevertheless, it seems clear that of the two federal actions, establishment of a broad national health care system has the greater potential to provide fiscal relief to states and localities.

The difficulties of assessing the effects of alternative federal health care systems on state and local finances are similar to those of assessing the impacts of welfare reform. Certain aspects of program design are critical. A universal health insurance program would presumably replace the full array of existing federal support programs (including Medicare as well as Medicaid) and make most of the present state and local contribution unnecessary. The proposals that seem realistic for the next few years are more limited. Some would mainly fill in the gaps in coverage left by the existing federal and state programs; some would provide only

Table 4.8

State and Local Spending and Federal Aid for Public Welfare and Health and Hospitals, 1974-75
($ billions)

Function	State and Local General Expenditure	Federal Aid to State and Local Governments	State and Local Expenditure Net of Federal Aid
Public Welfare (including Medicaid)	27.2	14.4	12.8
Health and Hospitals	18.8	2.1	16.7
Medicaid	12.6	6.9	5.7
Public Welfare (less Medicaid)	14.6	7.5	7.1
Health and Hospitals (including Medicaid)	31.4	9.0	22.4

SOURCES: All data except Medicaid from U.S. Bureau of the Census, *Governmental Finances in 1974-75*, GF75, No. 5, Washington, D.C., September 1976, Table 6. Medicaid data from Hamilton and Rabinovitz (forthcoming).

certain kinds of coverage (e.g., for costs of "catastrophic" illness); and some would pay only portions of the cost of health services.[21] Whether state and local programs would be affected, and the degree to which they would be affected, would depend on coverage, benefit levels, and other attributes of the federal plan. The fiscal impact of federalization on the state-local sector would also depend on whether states were required, allowed, or induced to augment the federally supported health care payments. As in the case of welfare reform, state decisions about whether and how much to supplement the basic federal program are likely to depend on how the characteristics of the federal plan compare with those of existing state Medicaid systems and other health aid programs. To say anything more concrete, it would be necessary to analyze specific federal health care proposals in relation to the current health programs in the several states.

There are large interstate variations in per capita outlays for health services. State and local contributions to Medicaid and other "medical assistance" programs range from less than $2 per capita in a number of states (Arizona, Indiana, Maine, Maryland, Nevada, North Dakota, Oregon, and Wyoming) to $97 per capita in New York, $52 in California, and $50 in Pennsylvania (1975 data reported in Hamilton and Rabinovitz). Variations in outlays for components of the health and hospitals function other than medical assistance are not as drastic, but the per capita amounts varied (in 1975) from $39 in North Dakota to $191 in New York, about a national average of $88.[22] The distribution of expenditures is such that most of the fiscal relief provided by federal assumption of state-local health costs would go to some of the large urbanized states. However, Congress would probably be unwilling to enact a program that distributed its benefits in that manner.

The degree to which the responsibility for health care financing is passed on to cities and other local governments varies greatly from one state to another. Nationally, direct state-local general expenditures for the health and hospitals function are split almost evenly between state and local governments: In 1974-75, direct general expenditures for that function by states and localities were $9.0 and $9.9 billion, respectively. Some state governments bear most of these costs directly (e.g., Delaware, Hawaii, Maine, North Dakota, Rhode Island, and Vermont); others, including some of the largest states, assign most of the responsibility to the local sector (e.g., 71 percent in California and 63 percent in New York.)[23] This means that the direct benefits of federal assumption to the local sector, and to cities in particular, would be distributed very unevenly. Moreover, it is uncertain that the benefits of federal assumption would accrue to localities, even where the financial burdens of health services are currently borne at the local level. States could respond to an expansion of federal responsibilities in the health field by cutting back on state aid to localities or in other ways that would offset the savings resulting from reduced local spending for health and hospitals. Thus, there is little basis for making quantitative estimates of the degree to which federal assumption of some or all health care costs would translate into fiscal relief for local governments in urban areas.

Other Possibilities for Federal Assumption of Responsibility. It is difficult to think of other state-local programs for which the federal government might be likely in the foreseeable future to assume full responsibility. However, there are

[21] Alternative forms of national health insurance are analyzed in Davis (1974) and CBO (1976b).

[22] Bureau of the Census, *Governmental Finances in 1974-75*, GF 75, No. 5, 1976. Note that these figures refer to the percentages of direct outlays accounted for by the local sector, not the percentages financed out of locally collected revenue.

some areas in which it is conceivable that the federal financial role could become substantially larger than at present. Some of the major possibilities are in education. It has been proposed for many years by educational interest groups that the federal government take on a much larger fraction of the burden of financing elementary and secondary education. Such proposals were considered seriously by the Administration in 1971-72 and could receive attention again once the nation's economy is fully recovered. The magnitude of state-local spending for public schools is so large that federal assumption of even a small fraction of the burden would have a significant effect on the finances of the whole state-local sector (see the following discussion of federal inducements to states to assume local responsibility for some illustrative figures). There are also some possibilities in higher education: Either an expanded federal program of tuition aid (in the form of direct grants or tax credits) or an expansion of institutional grants to colleges and universities could reduce the cost to states of supporting their higher education systems. This could benefit many localities indirectly and a few directly, notably New York City.[23] Other possibilities include expanded federal support for mass transportation systems (both construction and operations) or for various categories of capital construction. Greater federal involvement in these and other areas would presumably take the form of larger grants and would represent a quantitative but not qualitative change in the federal role. A final possibility worth noting—one that has developed relatively recently—is that there could be a new federal role of subsidizing public sector employment. The antirecessionary Public Service Employment program has set a precedent for this form of involvement. It is not impossible that such a role could become institutionalized, either as a form of general aid to cities or as an adjunct to a comprehensive welfare reform and job creation program.

Federal Inducements to States to Assume Local Responsibilities

Instead of assuming new financial responsibilities itself, the federal government could aid the urban public sector by inducing state governments to assume fiscal burdens that are now assigned to cities and other local jurisdictions. Congress has several means of exerting such influence: One is to limit eligibility for certain federal grants to states that finance the aided programs from state revenue, but not to states that delegate the revenue-raising responsibility to local authorities. A second is to offer specific financial incentives ("bonus" grants) to states that operate programs directly. This would allow recognition of differences in the degree of state financial responsibility—e.g., bonuses could be linked to the fraction of program financing that originates at the state level. A third method is to offer general financial incentives to states that relieve the fiscal pressures on their localities—e.g., by basing the state's share of GRS money on the proportion of total state-local revenue that derives from uniform statewide taxes.[24] A fourth possibility, somewhat less direct, is to establish requirements for statewide service uniformity or

[23] In 1974-75, New York City expended $484 million for higher education, which was 73 percent of total spending for that function by the 48 largest cities and 12 percent of higher education spending of all local governments.

[24] The existing formula for distributing GRS funds among states contains one element of this kind—a factor reflecting the degree to which a state relies on state income taxes, as opposed to other revenue sources. However, this factor receives only a small weight in the overall distribution formula and is subject to other restrictions that reduce its incentive effects (Nathan, Manvel, and Calkins, 1975).

equality that would require states either to provide the services directly or to make relatively large amounts of aid available to their localities. The most important area in which federal interventions of these kinds have been proposed is elementary and secondary education. Similar options are relevant in the welfare field and possibly in several other program areas.

Enlargement of the State Role in School Finance. The potential fiscal impact of a shift in school finance responsibilities dwarfs the effect attainable in any other program area. In 1975-76, local jurisdictions expended $67.3 billion for elementary and secondary education, of which $32.5 billion, or 48 percent, came from their own revenue sources; $28.3 billion, or 42 percent, from the state; and $6.4 billion, or slightly less than 10 percent, from the federal government (National Center for Educational Statistics, NCES, 1977). A shift of less than 10 percent of the local share of the school finance burden to the states would provide more relief to the local sector than would federal or state assumption of all local financial responsibility for public welfare.

During the last few years, there has been a significant shift of the school finance burden from local education agencies to the states. The locally financed fraction of the nonfederal cost of public schools declined from 58 percent in 1969-70 to 53 percent in 1975-76 (NCES, 1977). Federal policy has had little to do with this shift. The principal impetus came from the post-1970 school finance reform movement, which, through the *Serrano* decision and subsequent litigation, and through political action, has stimulated significant changes in finance systems in at least 20 states.[25] The primary goal of the reforms has been intrastate equity in the distribution of educational resources and tax burdens, rather than local fiscal relief or state assumption, per se. Progress toward intrastate equalization has usually been accompanied by reduced reliance on local property taxes and an increase in the state share of the burden of school finance (Callahan and Wilken, 1976).

For a brief period in 1971-72, the Nixon Administration espoused a proposal for massive federal involvement in the school finance field, whereby federal money would replace a large portion of the local property tax used to support the schools. There were also a number of Congressional proposals for providing substantial amounts of federal aid to states that undertook to revamp their school finance systems along the lines called for in the *Serrano* decision. Interest in these proposals declined sharply, however, after the Supreme Court's decision in the *Rodriguez* case, which eliminated the prospect that the federal courts would mandate school finance reform throughout the country.[26] Since then, the level of federal interest in school finance reform has been much lower. There are still occasional proposals for federal programs that would induce states to reform their systems, but the only current activities in the area are (1) a small program of assistance for development of state equalization plans, and (2) an incentive for intrastate equalization incorpo-

[25] The reforms are described in Callahan and Wilken (1976). More recent developments are summarized in Odden, Augenblick, and Vincent (1976).

[26] In *San Antonio Independent School District* v. *Rodriquez*, (1973), the Supreme Court ruled that wealth-based discrimination in educational spending does not violate the equal protection clause of the federal constitution. Had the decision gone the other way, the federal government would have become directly responsible for establishing national standards of equity in school finance. Since the ruling, school finance litigation has centered in state courts and the federal government has played only an ancillary role.

rated into the program of School Assistance in Federally Affected Areas (SAFA).[37] Nevertheless, there are continual calls from education spokesmen for a greater federal financial role, and it is not inconceivable that there will be renewed federal interest in school finance reform once the overall federal budget situation improves.

If some type of federal action to stimulate or assist state assumption of school finance responsibilities were contemplated, the following points about the urban fiscal impact of such action would be worth noting:

First, the immediate beneficiaries of state assumption would be local school districts, not cities or other general-purpose local jurisdictions, except in the few states where schools are financed by county or city budgets. Nevertheless, general-purpose governments would probably benefit indirectly because state assumption would reduce school district pressures on the local property tax base, on which general-purpose governments depend for much of their revenue.

Second, some of the benefits to the local sector of an enlarged state role in school finance would probably be offset by the measures that states would have to take to finance their increased education outlays. The necessary revenue could be raised by three methods: (1) cutting back state aid for local services other than education, (2) reducing spending for state-operated programs, or (3) raising state taxes. As was explained in the discussion of the federal-state-local fiscal system earlier in this section, each of these actions would tend to increase the fiscal pressure on local governments. In particular, if increases in state spending for education were financed by reducing state aid for other functions, it is conceivable that local general-purpose governments would be made worse-off by the transaction.

Third, the amount of local fiscal relief that could be provided by school finance reform varies greatly both among and within states. Some states already finance a large fraction of public school costs out of state revenue, while others finance relatively little in that manner. In 1975-76, the share of nonfederal revenue for elementary and secondary schools raised at the local level varied from 90 percent in New Hampshire to only 20 percent in New Mexico (NCES, 1977). There are also large interdistrict variations in most states in the state and local shares of the financial load. Any program of federal financial assistance would have to be designed carefully to avoid inequitable treatment of states with different types of systems.

Finally, the types of intrastate redistributions that are needed to satisfy *Serrano*-type court decisions, and that federal aid might encourage, do not always favor urban areas. In some states, urban school districts appear relatively wealthy in terms of taxable property per pupil, and the effect of unmodified *Serrano*-type reform could be to *reduce* their state aid or *increase* their local school taxes. However, other principles of school finance reform, such as the principles of taking into account interdistrict variations in costs of schooling, education needs, and noneducation property taxes ("municipal overburden"), would imply extra funds for cities.[38] The urban fiscal impact of school finance reform would depend on what balance was attained among the different distributional principles.

[37] The incentive provided under SAFA (the so-called impact aid program) is that a state that meets certain standards of intrastate equalization of school expenditures is permitted to take federal impact aid into account in computing its own aid to local districts, whereas states that fail to meet the standard must distribute their own aid without regard to the availability of SAFA funds.

[38] The conflict between rival reform principles is underscored by the *Levittown* v. *Nyquist* litigation in New York State, in which low-tax base, non-central city districts have asked for *Serrano*-type equali-

State Assumption of Local Responsibility for Public Welfare. Another program area in which states could be induced to relieve their localities of a fiscal burden is public welfare (assuming that no conplete federalization takes place). The mechanism for bringing about such a shift in responsibility is the federal grant legislation. If Congress so desired, it could either require or reward full state assumption of financial responsibility for the nonfederal shares of cash and in-kind transfer programs. The amount of local fiscal relief that would be generated by full state assumption of welfare costs is relatively limited. In 1975, only $0.6 billion of AFDC costs and $1.4 billion of the costs of the other welfare programs were financed at the local level (Hamilton and Rabinovitz, forthcoming). Moreover, the pattern of local responsibility and local funding is erratic. Most local fiscal relief from a full state takeover would be concentrated in a few states (notably New York and California) and would accrue to a few large cities and urban counties. Nonetheless, such a step would help some financially hard-pressed local jurisdictions and relieve their taxpayers of a burden that taxpayers at the local level are not required to bear in most parts of the country.

Federal Incentives for Changes in Government Structure

In addition to shifting functional responsibilities from local jurisdictions to the federal or state levels, the federal government could exert some influence over states to alter the division of functional responsibility within the local sector. Two types of changes would provide fiscal relief to central city jurisdictions in metropolitan areas: The first is to transfer some responsibilities from municipalities to county governments. Where a county spans a larger geographical area than a city, and especially where the county encompasses all or most of a metropolitan area, the effect would be to spread the costs of central city services over a broader population and tax base. This would be one method of imposing some of the costs of central city services on suburban residents, who, it is often alleged, derive benefits from the city but escape paying their full share of the costs. The second type of change, which would accomplish the same goal more explicitly and directly, would be to shift certain functions to metropolitan units of government or to institute some form of metropolitan tax base sharing.

Much has been written about the fiscal consequences of the jurisdictional fragmentation that characterizes many of our metropolitan areas. Several studies (Peterson, 1976; Bahl and Vogt, 1975; ACIR, 1967) have identified the disjunction between the boundaries of the central cities and the boundaries of their market areas as a major cause of central city financial problems. Intercity and interregional variations in fiscal condition have also been associated with metropolitan government structure. It has been shown that the relatively favorable fiscal positions of some of the larger cities in the South and West are partly attributable to the abilities of those cities to annex surrounding territory, thereby capturing the benefits of economic growth (Muller, 1975). In contrast, central city boundaries in the Northeast and Midwest are usually fixed, which means that most economic expan-

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zation to adjust for differences in wealth, while high-tax base central city districts, which would lose if this reform were instituted, have asked, instead, that the state compensate for the special educational needs of their children and for the "overburden" represented by high rates of taxation for noneducational services.

sion takes place in independent suburban jurisdictions and does not contribute to central city revenue. Various forms of tax base sharing, metropolitan consolidation, and metropolitan provision of selected services (e.g., by means of special districts or authorities) have been suggested as strategies for alleviating urban fiscal problems.

The federal government has done relatively little to influence the structure of government in metropolitan areas. Certain federal programs (e.g., mass transportation, environmental protection) provide support for metropolitan area authorities and coordinating bodies and for metropolitan planning units, such as Councils of Governments. There are also some indirect federal incentives affecting government structure. For instance, the GRS program probably encourages fragmentation by providing aid to each separate tier of local government and to local governments of all sizes, but it may encourage one form of consolidation by limiting eligibility for aid to general-purpose governments.

The federal government has no direct authority under the Constitution to alter local government structure. State governments exercise exclusive power in that area. Nevertheless, federal policymakers could employ many incentives, especially in connection with grant-in-aid programs, to encourage state and local authorities to establish metropolitan authorities and to adopt systems of tax base sharing.

A major change in the scope of local service responsibilities will alter the locational incentives facing business firms and households. Both shifts of responsibilities to higher-level governments and reduction of metropolitan fragmentation would tend to reduce the importance of interjurisdictional fiscal disparities as factors affecting locational decisions. In most instances, the effect would be to reduce the advantages that suburbs now enjoy relative to central cities and rural areas. However, there are places where cities are financially better off than suburbs and where the effects would be in the opposite direction. A shift to a less fragmented pattern of local government could also affect the relative attractiveness of cities in different regions by reducing the advantages that cities in the "sunbelt" regions now enjoy over the cities of the Northeast.

FEDERALLY IMPOSED SERVICE OBLIGATIONS AND COSTS

As explained above, the federal government can influence the expenditure obligations of local jurisdictions by (1) attaching expenditure requirements to intergovernmental aid, and (2) altering the range of public services for which local governments are responsible. A third method—perhaps the most direct—is to stipulate in law or regulation that certain services must be provided, that they must be distributed in certain ways, or that they must be produced using specified resource inputs, or inputs with specified prices. Until recently, the federal government had little to say about such matters, except in connection with grant programs. Expansion of the federal role in such areas as civil rights enforcement and protection of the environment has made this mode of federal involvement increasingly important.

No comprehensive study has been conducted of the obligations that the federal government has imposed on cities and other local governments. There is no basis for estimating the costs that such obligations represent to the local sector. However,

the varied nature of the obligations can be illustrated by several examples: One aspect of federal environmental protection legislation that has imposed the substantial costs on the local public sector is the establishment of water quality standards. To satisfy the standards, municipalities must construct and operate waste water treatment plants. Estimates of the capital costs of meeting the federal requirements run into the tens of billions of dollars. Under the Federal Water Pollution Control Act Amendments of 1972, Congress authorized federal grants to cover 75 percent of the construction costs of such facilities. The remaining 25 percent of construction costs plus the total cost of operating and maintaining the facilities—none of which is paid by the federal government—constitutes a large, long-term expenditure obligation of general-purpose local governments.[29]

An example of an expenditure obligation arising out of federal civil rights law is the set of requirements concerning treatment of handicapped persons imposed on local jurisdictions pursuant to the Rehabilitation Act of 1973. Under Section 504 of the Act, recipients of federal grants are enjoined from discriminating against handicapped individuals in the provision of services. Among other things, local public school districts are required to provide "appropriate" educational services to all handicapped children residing within their bounds and public and private institutions are required to ensure that handicapped persons have physical access to their facilities. The cost of expanding elementary and secondary special educational programs to serve all handicapped children has been estimated at $ 5 billion or more, of which only a fraction would be reimbursed under federal programs of aid for education of the handicapped (Wilken and Porter, 1976).

Another example of costs stemming from federal enforcement of civil rights concerns school desegregation. Many local school systems, acting under the orders of federal courts, have had to bus large numbers of children, reorganize their schools, and develop new instructional programs and support services to facilitate racial integration. A portion of the cost of integration-related activity has been defrayed by federal aid under the Emergency School Aid Act but the Congress has expressly forbidden the use of any federal funds to support school busing for the purpose of racial integration, thereby placing the burden of that activity on the local districts.

Other examples of federal requirements that create costs for subfederal jurisdictions include the requirements to prepare environmental impact statements in connection with proposed public development projects, to adhere to occupational safety and health standards, and to conduct criminal justice activities in accordance with the procedural safeguards established by federal courts.

Federal influences on the prices that local governments must pay for resource inputs are limited thus far, but could become an important factor in the future. An example of direct control is the requirement of the Davis-Bacon Act that imposes federal standards of "prevailing wages" on all construction financed wholly or in part with federal grants. Other prices that the federal government affects directly (although not by policies aimed specifically at the public sector) are energy prices and the interest rates that local governments must pay when they borrow money.

The federal government does not now exert direct control over the wages,

[29] The Act contains provisions requiring localities to establish appropriate fees for services and plans for recouping the proportions of capital outlay attributable to treatment of industrial waste water. Implementation of such arrangements would reduce the burden of the program on the local tax base.

hours, and working conditions of public employees, but only because the 1976 Supreme Court decision in *National League of Cities* v. *Usery* prevented the Congress from extending such legislation to the public sector. That decision, which denied the federal government the right to set minimum wage standards for state and local employees, has been interpreted by some to preclude federal involvement in other aspects of state-local labor relations, including collective bargaining. However, this interpretation is not universally shared. New bills calling for establishment of a federal framework for public sector collective bargaining have been introduced in Congress and additional court tests may be forthcoming. Should collective bargaining legislation eventually be enacted and upheld by the courts, it would become a strong and direct instrument of federal control over the costs of providing services in the local public sector.

V. FEDERAL POLICIES THAT AFFECT URBAN FISCAL CONDITIONS INDIRECTLY VIA THE PRIVATE SECTOR

Of the five main fiscal opportunity factors identified in Section III—the local revenue base, the availability of external aid, demand for local public services, service costs, and the scope of local fiscal responsibility—only two, external aid and fiscal responsibility, may be influenced primarily through direct transactions between federal and local (or state) governments. The revenue base, the demand for local services, and most aspects of service costs are influenced by policies that have their initial effects in the private business and household sectors. This section reviews the federal policies that affect local fiscal conditions via these indirect channels.

The federal policies considered here all operate by influencing population, housing, and residential location patterns and the structure of private economic activity in urban areas. A review of the individual policies would duplicate the contents of the *Population and Residential Location* and *Economic Development* reports. To avoid the duplication, this discussion is limited to a relatively brief examination of the generic types of federal policies that influence business and household location decisions. Emphasis is placed on those linkages between federal policy and urban fiscal conditions that are not examined in detail in the other two documents.

The section consists of three parts: federal influences on the local revenue base, demands for services, and costs of services.

EFFECTS OF FEDERAL POLICIES ON THE REVENUE BASE

Of the many federal policies that affect the urban revenue base, very few impinge directly on the local public sector. Perhaps the major example of a direct federal effect is the removal of land from local tax rolls in places where federal installations are located. Most other federal policies that affect local tax bases have their initial impacts either on the level of private economic activity in urban areas or on urban population and housing patterns, and it is only subsequently that the revenue base is affected. This discussion provides an overview of the major federal policies and their effects, a discussion of the indirect linkages between federal policy instruments and the revenue base, and a summary of the current availability of relevant empirical information.

Components of the Local Revenue Base

Local governments in the United States raise revenue primarily by taxing residential and business property within their boundaries. In 1974-75, approximately 59 percent of all local general revenue from own sources was obtained from property taxation, 13 percent from other taxes (mainly sales, income, and license taxes), and 27 percent from fees for service and other nontax sources.[1] The degree

[1] Data from U.S. Bureau of the Census, *Governmental Finances in 1974-75*, GF 75 No. 5, Washington, D.C., 1976.

of reliance on these different revenue sources varied among different types of local jurisdictions. Table 5.1 presents data on the revenue derived from each major source by all local governments, general-purpose local governments, all municipalities, and large municipalities with populations of 300,000 or more. The table shows that the fraction of revenue derived from local property taxation is smaller for general-purpose governments than for the whole local government sector. (This mainly reflects the almost exclusive reliance on local property taxation by local public school districts, the largest category of special-purpose government.) Municipalities rely less on the local property tax than do other local governments, and large cities rely on it less than do municipalities in general. Nevertheless, even the large cities raised 40 percent of their own revenue from property taxes in 1974-75. Cities in general, and large cities in particular, make heavier use of nonproperty taxes than do other local governments. The major nonproperty taxes used by cities are sales and gross receipts taxes (both general and selective), with the local income tax next in importance. However, even the large cities, which make more use of income taxes than other local jurisdictions, derive only 12 percent of their own revenue from income taxation.

The property, income, sales, and other components of the local revenue base are not independent of one another. The value of the residential portion of a community's property tax base is related to local expenditures for housing, which, in turn, depend on residents' incomes. The size of the retail sales tax base depends on the volume of consumer purchases, which is also related to community income. The value of commercial and industrial property, the payroll component of local income, and the volume of sales are related to each other in that they all depend on the volume of private economic activity in a jurisdiction. Therefore, any federal policy that affects one component of the local revenue base is likely to affect other components as well. In particular, even though direct taxation of income accounts for only a minor fraction of local revenue, any federal policy that influences relative levels of income in different jurisdictions is likely to have an important impact on local revenue raising ability through its effects on local property values and retail sales.

Unfortunately, data are not generally available on the shares of local property revenue derived from taxation of residential and business property. Nationally, it appears that the values of residential and nonresidential components are in proportions of roughly 3 to 2, but there is a great deal of variation among jurisdictions.[2] The significance of the distinction is that the residential component can be affected primarily by policies aimed at households or at the housing market, while the business component is more readily influenced by policies that affect the output and investment decisions of private firms. For the purpose of tracing the effects of federal policy, this distinction between the residential and nonresidential portions of the tax base is more fundamental than distinctions among the different types of taxes paid by households or businesses, respectively.

[2] Data on assessed property values for states, SMSAs, counties, and cities are reported in Bureau of the Census, *1972 Census of Governments*, Vol. 2, *Taxable Property Values and Assessment-Sales Price Ratios*, Part 1, *Taxable and Other Property Values*, Washington, D.C., April 1973. For 1972 information on the breakdown of the assessed values between residential and industrial-commercial property is available only for a sample of 28 large jurisdictions. For this sample as a whole, the residential category accounts for 58.4 percent of total gross assessed value. However, the selected jurisdictions are nearly all central-city counties of large SMSAs, and the proportions may not be typical of the rest of the country. The 1977 Census of Governments (forthcoming) will report such data for a much larger sample of jurisdictions.

Table 5.1

General Revenue from Own Sources of Various Categories of Local Government, 1974-75

Revenue Source	All Local Governments		All General-Purpose Local Governments[a]		Municipalities		Municipalities with Populations of 300,000 or More	
	Amount ($ billions)	Percent	Amount ($ billions)	Percent	Amount ($ billions)	Percent	Amount ($ billions)	Percent
General Revenue from Own Sources	84.4	100.0	52.3	100.0	30.2	100.0	14.9	100.0
Taxes	61.3	72.7	37.2	71.2	21.1	70.0	11.0	73.8
Property	50.0	59.3	26.5	50.7	13.0	43.2	5.9	39.9
Nonproperty	11.2	13.3	10.7	20.5	8.1	26.8	5.0	33.9
Sales and Gross Receipts	6.5	7.7	--	--	4.6	15.1	2.6	17.6
Income	2.6	3.1	--	--	3.5	11.7	1.8	12.2
Other[b]	2.2	2.6	--	--			0.6	4.0
Nontax Sources	23.0	27.3	15.1	28.8	9.1	30.0	3.9	26.2
Current Charges	15.2	18.0	--	--	5.4	18.0	2.3	15.7
Miscellaneous[c]	7.9	9.4	--	--	3.6	12.0	1.6	10.5

SOURCES: U.S. Bureau of the Census, *Governmental Finances in 1974-75*, GF75, No. 5, and *City Government Finances in 1974-75*, GF75, No. 4, Washington, D.C., 1976.

[a]General-purpose governments include counties, municipalities, and townships. Special-purpose governments include public school districts and other special districts.

[b]Other taxes consist of motor vehicle and other license taxes, death taxes, gift taxes, and severance taxes.

[c]Miscellaneous sources of revenue include special assessments, sales and property, interest earnings, and fines and forfeits.

Channels of Federal Influence: Conceptual Analysis

Figure 5.1 represents the major pathways by which federal programs and policies affect the urban tax base. The sizes of the principal components of the tax base—income, payrolls, sales, and business and residential property—are determined mainly by two sets of choices: (1) decisions of business firms concerning the amounts of investment and employment to be located in different communities and (2) residential location and housing consumption decisions of households. Both sets of decisions are affected in many ways by actions of the federal government.

In Fig. 5.1, business firms are shown as determining the amounts of investment (buildings, equipment, land, etc.) in each locality and the levels of local employment and wages. The amount of invested capital is the principal determinant of the business portion of the local property tax base.[3] The employment and wage decisions determine the size of payrolls, which constitute the largest part of residents' income. These decisions are influenced by many more federal policies than can be represented in the diagram. All such policies are categorized under the general label, "Federal Policies Affecting Location of Business Firms." Included in that grouping are federal transportation programs, energy policies, tax and subsidy policies that influence business investment, and explicit federal economic development programs. The one category of federal policy that is singled out in the diagram is "Federal Influences on the Supply of Labor." This is not because that policy category is necessarily more important than other types of policies that affect business location, but because the interaction between population and business location patterns is a matter of special interest, for reasons explained below. All the policies listed above are discussed in the *Economic Development* report.

Figure 5.1 also shows that the size of the residential property tax base in a locality is determined by residential location and housing decisions of consumers, and that those decisions are influenced by a large array of federal policies. The federal influences may be classified into those that affect the demand for housing in different localities and those that influence housing supply. The former include federal programs that alter the ease of access to different residential areas (e.g., highway and rapid transit programs, transport pricing policies, and energy policies), programs that affect residential amenities (e.g., environmental protection programs and support for urban public facilities and services), policies that change the service offerings and taxes of the local public sector (especially the services provided by public schools and the income maintenance payments available in different areas), and policies that influence the demand side of the housing market directly, such as tax deductions for housing, mortgage subsidy programs, and enforcement of antidiscrimination laws. The supply-side policies include tax incentives and subsidies for housing construction, support for residential infrastructure (e.g., grants for water and sewer systems), federal influences on costs of home construction and operation, and federal influences on state and local land-use policy. These policies are reviewed in the *Population and Residential Location* report.

[3] There are variations among states in the categories of business property subject to taxation. In a few states, "personal," as opposed to "real," property used in business is completely exempt from taxation, whereas in most states, some but not all classes of personal property (which may include, e.g., machinery and equipment and inventories) are taxable. For a comparison of the taxable status of different types of property in each state, see the *1972 Census of Governments* publication referred to in fn. 2, pp. 8-9.

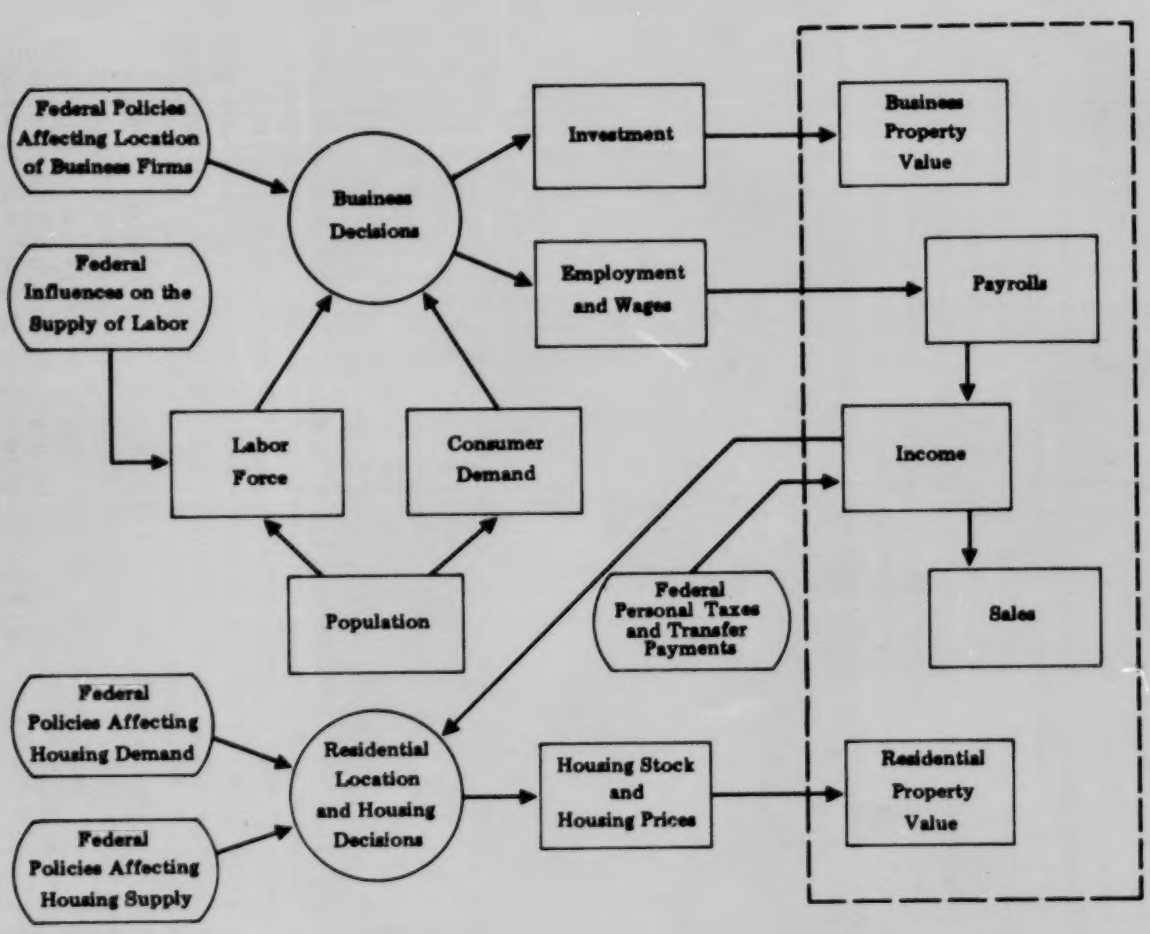

Fig. 5.1—Channels of Federal Influence on the Local Tax Base

Some of the relationships among the different components of the local tax base are indicated in the diagram. Employment and wages determine payrolls, which then determine incomes. A number of federal policies influence the level of locally taxable income directly. These include federal transfer payment programs (social security, welfare, etc.), which augment residents' incomes, and federal tax policy, which determines how much income remains to be taxed at the local level. The level of income, in turn, influences the volume of sales. Also, the income level is a major determinant of the demand for housing in an area, and thus affects the housing stock, housing prices, and the value of residential property.

Figure 5.1 also illustrates that the effects of policies aimed at the business sector and policies aimed at the residential, or household, sector are not likely to be confined to the sector initially affected. Business and residential location patterns are interdependent. Three different linkages between them are represented in the diagram: (1) residential location decisions influence the labor supply in each locality, thereby influencing locational decisions by businesses; (2) residential location outcomes influence the distribution of consumer demand, thereby influencing the decisions of firms that seek to locate close to their markets; and (3) business decisions determine the location of employment, or job opportunities, thus influencing residential choices by households. Therefore, a policy aimed at residential patterns in metropolitan areas—e.g., one that stimulates certain patterns of home construction or that improves the availability of mortgage credit—may have indirect effects on the spatial distribution of the business property tax base in addition to its more direct and more readily predictable impact on residential property values.

The feedback relationship between the public and private sectors is not shown in the diagram to avoid making it unnecessarily complicated. Any policy change or external development that affects the tax base of a community necessarily alters either the level of local public services, the local tax rate, or both. Changes in these fiscal magnitudes probably influence business and residential location decisions, thereby exerting an effect on the local revenue base. It is important to distinguish between the initial, or first-round, effects of a policy change and the ultimate effects. The latter will become manifest only after local governments, business firms, and households have been able to adjust to changes in each other's behavior and locational patterns and after the induced, secondary effects have been capitalized into property values.[4]

The Problem of Quantifying Tax Base Impacts

Quantification of the effects of a federal policy action on the local revenue base of a community involves two tasks: (1) determining the effects of the policy change on economic activity and on population and housing patterns in the community, and (2) determining the effects of the economic, demographic, and housing changes on the revenue base. The first task is extremely complex. It has been addressed by many researchers, but the results to date provide only a small fraction of the information needed to assess federal policy impacts on urban areas. The *Economic*

[4] A brief summary of research on these feedback effects appears at the end of Section VI. Further information on the response of business and residential location decisions to levels of local services and taxes is provided in Section IV of the *Economic Development* report and Section X of the *Population and Residential Location* report.

Development and *Population and Residential Location* reports are devoted almost entirely to synthesizing research findings in this area and to reviewing the state of the art in the relevant research fields. In comparison, translating economic, demographic, and housing changes into tax base changes is relatively straightforward but has not attracted much research attention. The data needed to translate the economic and demographic attributes of communities into "tax base equivalents" have not been assembled or presented in readily usable form. Such information could be brought together, given sufficient resources. The relevant types of empirical information are described below.

Effects of Federal Policies on the Residential Tax Base

From the point of view of the local tax collector, each household in a community represents a package of taxable amounts—residential property per household (or per capita), taxable income or wages, cash outlay for retail purchases, and so forth. These amounts vary with household characteristics, such as family size and composition, employment and occupational status, race, and form of housing tenure. Federal actions can affect the per capita values of these taxable magnitudes in two ways: by altering the economic circumstances of the existing urban population or by altering the composition of the urban population itself. To analyze the federal impact on the residential portion of the tax base, one must consider the policies that have these two effects, and then assess the connection between the economic and demographic characteristics and the various tax base components.

Effects on the Existing Population. The federal policies that can alter the tax base represented by a given urban population are those that affect personal incomes, purchasing power, and housing consumption. These include

1. Federal transfer payment programs—income maintenance programs, in-kind transfers, and, especially, housing assistance and subsidy programs —which affect housing consumption and, hence, the value of residential property.
2. Federal tax policies, which are relevant, first, because they determine the personal income available for expenditure on housing and other goods by local residents and available for local taxation and, second, because special federal tax provisions concerning housing, such as tax deductions for mortgage interest, influence housing expenditures and values of residential property.
3. Federal policies that influence the behavior of housing suppliers and housing markets, including direct subsidies and tax benefits for real estate investment and operations; regulation and subsidization of housing credit; and general monetary policy, insofar as it affects the availability and cost of funds to the housing industry.
4. Federal policies that affect personal incomes and purchasing power in different localities by influencing the level and location of economic activity. These policies, which are itemized below in connection with the nonresidential tax base, impinge initially on the business sector but then have indirect effects on the economic circumstances and behavior of households.

Although the federal tax policies and transfer payment programs mentioned above and the many federal policies aimed at the supply side of the housing market are *national* policies—i.e., they apply uniformly to all regions of the country and to urban, suburban, and rural areas—their effects are not geographically neutral. This is because the incidence of federal transfer and tax policies depends on the level and distribution of income, the rate of dependency, and the type of housing present in each area—attributes that vary systematically among regions and between cities, suburbs, and nonmetropolitan areas. As examples, an increase in the benefits provided under federal income maintenance programs, including subsidies for low-income housing, would have a larger impact on housing expenditure and consumption in cities than in suburbs because of the larger concentration of eligible beneficiaries in the former, while an increase in the tax benefits allowable to owner-occupants of housing would have a disproportionate impact in the suburbs because of the greater incidence of owner-occupancy in suburbs and the higher marginal income tax rates paid by suburban residents. "Nationally uniform" federal policies can easily have differential impacts on the per capita residential tax base in more and less urbanized areas simply because the types of people and economic activity at which such policies are directed are unevenly distributed between central cities and suburbs and among regions of the country.

Incentives for Population Shifts. A large number of federal policies affect the urban revenue base indirectly by establishing incentives for households of different types to move into or out of cities. Federal actions during the post-war years have been identified as important causes of two fiscally significant demographic trends: (1) absolute population decline in the northern central cities, and (2) increasing concentrations of the poor and minorities, and correspondingly lower proportions of middle-income and upper-income residents in the central cities, especially relative to the suburbs. Of the two, the latter is the more serious development. The problems posed by absolute population decline would be mainly problems of adjustment as long as the per capita revenue base were not adversely affected. However, departures of middle-class residents and inflows of the poor necessarily imply a lowering of the per capita residential tax base and a decline in the urban fiscal opportunity schedule. Therefore, the federal policies that have encouraged such shifts must be considered significant sources of the cities' current fiscal problems.

Among the most frequently cited examples of federal policies that have allegedly encouraged middle-class outmigration from the cities and the influx of the poor are the following:

1. The federal interstate highway program, which is widely recognized as a major contributor to suburban development during the last two decades and which has facilitated shifts of population and economic activity toward the Southeastern and Southwestern regions.
2. Federal housing programs (including tax subsidies), which, on one hand, have favored new over existing, single-family over multifamily, owner-occupied over rental housing, and new development over rehabilitation, and thereby encouraged suburbanization; and, on the other hand, have concentrated public and publicly-subsidized housing units and their lower-income inhabitants in the central cities.

3. The federal welfare system, which has given rise to a pattern of high benefit payments and liberal eligibility standards in the urban Northeast (and the Pacific states) and lower benefits and more restrictive standards elsewhere, and which may therefore have encouraged the poor to concentrate and remain in the older urban centers.
4. Federal financial aid for development of water and sewer systems, which, like aid for highways, has promoted the development of the suburbs and the newer regions and thereby facilitated to the middle-class outmigration from the cities.
5. Federal enforcement of antidiscrimination laws in public schooling and housing, which in some instances may have stimulated white and middle-class flight from the cities.

Although there are federal policies that may operate in the opposite direction, such as urban renewal and assistance for urban mass transit systems, their effects have been small compared to the policies that have encouraged fiscally adverse shifts in urban demography.

In many instances, the evidence concerning the effects of federal actions on movement into and out of cities is inconclusive, and even where conclusive, it is usually insufficient to yield useful estimates of the quantitative impact of a given type of policy. For instance, the contribution of federally aided highway systems to suburban development is one of the most widely accepted propositions of the residential location literature. Nevertheless, existing analytical tools do not allow us to say how much less suburbanization might have occurred if, say, the radial freeways or the circumferential beltways around our major cities had never been built or if they had been built on a smaller scale. Other propositions about the locational impacts of federal policy are far more controversial. The analytical evidence on the contributions of federal welfare and school desegregation policies to white or middle-class flight is ambiguous, and the question is still vigorously debated at both the analytical and political levels.[5] The fundamental obstacle to settling these issues and developing quantitative estimates of federal impacts is that many federal actions and many exogenous forces have contributed to the major post-war population trends—suburbanization, urbanization of the poor and minorities, and the more recent migration to the sunbelt—and it is exceedingly difficult either to distinguish the effects of government policies from those of the exogenous economic and technical factors or to isolate the effects of individual government policies. The art of urban modeling is not yet sufficiently developed to permit estimation of the effects of specific federal policy changes on even the gross intrametropolitan or interregional population flows, much less to support estimates of the federal impact on the specific population attributes that are correlated with the per capita revenue base.

Although it is possible to distinguish, in principle, between policies that affect the economic situation of the existing urban population and those that influence the urban population mix, some federal actions have both effects and—more significantly—the two effects may work in opposite directions. For example, the various

[5] For summaries of the literature concerning the locational incentive effects of welfare differentials and school desegregation policies, see Sections VII and XI, respectively, of the *Population and Residential Location* report.

indirect subsidy programs for housing (tax deductions, FHA mortgage insurance, etc.) seem to exert an unambiguously positive effect on the urban tax base. That, however, neglects the locational incentive effect. As the programs are now designed, they tend to favor types of housing that are more commonly found in suburbs than in cities—i.e., owner-occupied homes and newly constructed dwelling units. Therefore, although the subsidies benefit some city residents, they also provide inducements to other residents, especially in the middle- and upper-income groups, to move to the suburbs. The net impact on the per capita residential tax base in the cities may be positive or negative. Similarly, federal income maintenance programs may seem to increase the per capita income of city residents, and thus unambiguously to raise the per capita urban tax base; but this is true only if the population of transfer payment recipients remains constant. If the present geographically uneven welfare system has induced poor people to concentrate in the central cities, and if the influx of the poor has contributed to middle-class flight, the net impact of the welfare system on per capita income and property value in central cities could well be negative. These are only two examples of federal programs whose long-run effects on urban finances could be adverse, even though, in the short run, they provide welcome financial aid.

The importance of locational incentives as a form of federal influence on the tax base should be underscored. The residential tax base is economically, if not physically, portable. When people are induced to move across jurisdictional boundaries, they take their housing expenditures with them; and, other things being equal, property values will follow. Any federal policy that reduces per capita income in cities relative to other places, either by inducing people with above-average incomes to move out or people with below-average incomes to move in must eventually result in a reduction in relative urban fiscal capacity. The potential negative impact of fiscally unfavorable population shifts seems to be greater than the potential positive effect of federal aid to existing urban residents: The revenue loss sustained by a city when a middle-class household is replaced by a poor one can be offset only in part by income maintenance payments and housing subsidies, and this would still be true even if considerably more generous transfer payment programs than now exist were enacted into law. Moreover, the population shifts that tend to reduce the per capita residential property tax base may also increase per capita service demands, thereby compounding the fiscal problem. (This point is discussed further below.) Therefore, it is the locational incentive effects, rather than the more visible shifts in flows of federal funds, that deserve to be emphasized in assessing the impact of federal policy decisions on the urban revenue base.

Translation of Demographic Shifts into Tax Base Changes. Even if the effects of federal actions on urban population and housing patterns were understood, it would still be necessary to translate that knowledge into estimates of the federal impact on the residential tax base. This requires information on the amounts of residential property, retail sales, and other taxable magnitudes associated with households of given characteristics. For instance, if it were somehow determined that the effects of federal action had been, say, to reduce urban per capita income by 10 percent, to increase the minority proportion by 30 percent, and to reduce the number of school-age children per capita by 20 percent, it would then be necessary to translate these pluses and minuses into estimated percentage changes in the per capita value of residential property.

The best sources of information on relationships between household characteristics and residential property values are studies of consumer expenditures for housing. The most extensively studied relationship is that between housing values (or rentals) and family income (summarized in de Leeuw, 1971, and Carliner, 1973). There is still considerable uncertainty about the numerical value of the income elasticity of demand for housing and about variations in that elasticity among different places and among households of different types. Differences in estimates arise from both the analytical methodologies employed by different authors and the data samples used in the different studies. Therefore, although a range can be specified, precise estimates are not available for the rate at which the per capita, or per household, tax base of a city will change in response to a given percentage change in the level of residents' incomes.

A number of studies have estimated the effects of household characteristics other than income on housing expenditures. Kain and Quigley (1976) took into account household size, number of children, and age and sex of the household head in their study of the demand for specific housing attributes. Straszheim (1975) examined housing demands of 16 different categories of households, classified according to marital status, household size, and age. These and similar studies provide a basis for estimating the differences in housing consumption per household or per capita associated with the major family structure characteristics that are likely to be relevant in policy studies.

Even with the results of housing expenditure studies in hand, it is not possible to move directly to estimates of the local tax base represented by each household. Such studies typically are based on data from one or a few housing markets, and do not account for variations in housing prices due to differences in housing supply conditions in different cities. Equally desirable housing units (bundles of housing attributes) do not necessarily bring the same price in different markets, and therefore do not represent equal taxable property values. To estimate the tax base represented by a particular type of household in a particular place, it would be necessary to combine information on household demand patterns with price information that applies to the individual locality. The computational and analytical task is a formidable one, and it has not been attempted.

Finally, one additional link between housing consumption patterns and taxable property values must be taken into account—the property tax assessment practices used in each locality. This is a complex subject that cannot be investigated here.[8] It suffices to say that there are major variations in tax assessment practices among communities and major disparities in the treatment accorded to different classes of residential property within communities. Therefore, information on housing expenditures, or even on housing prices, does not translate unambiguously into information on assessed taxable property.

Effects of Federal Policies on the Business Tax Base

Just as each household represents a package of taxable amounts, so each business firm located within the boundaries of a jurisdiction can be considered as representing a set of increments to various local tax bases. The land and buildings, and in some cases, the equipment of an enterprise are part of the local property tax

[8] For general discussions of tax assessment issues, see Netzer (1966) and Maxwell and Aronson (1977).

base. In addition, businesses generate payrolls, which may be taxable either at the source or as employee income; taxable sales (if engaged in retail trade); and, in the case of raw material producers, a base for special severance taxes. The federal government can affect the per capita values of these taxable magnitudes by policies that alter the relative attractiveness to private firms of urban, suburban, and nonmetropolitan locations and of different regions of the country. Although it is possible to distinguish, as in discussing the residential tax base, between federal policies that affect the investment and employment decisions of existing firms and those that affect locational choices of new or expanding firms, that distinction appears less meaningful in analyzing the business sector. The key empirical question is how federal policies have affected the growth rates of the private economy in different areas.

A large number of federal policies that appear to have contributed to interregional and central city-suburban differences in economic growth rates are analyzed in the *Economic Development* report. Although conclusive proof is difficult to assemble, there is evidence that the federal role in such areas as highway and rail transportation, provision of local public infrastructure, regulation of the labor market, and tax treatment of investments has contributed both to centrifugal tendencies within metropolitan areas and to the shift of economic activity to the sunbelt. The problems of disentangling the effects of individual federal policies and separating the effects of federal intervention from those of external forces are at least as difficult for the business sector as for the residential sector—perhaps more so because business locational theory is less well developed. Little empirical information is available in forms useful for estimating the effects of specific federal actions on the relative growth rates of central cities and suburbs or of different regions.

The close links between business and residential location decisions complicate the task of analyzing the impacts of particular federal policies on either the residential or the business component of the tax base. Demographic changes imply changes in the spatial distribution of the labor supply and consumer demand, both of which are important determinants of business location decisions. A shift in the geographical pattern of business activity implies a change in the location of employment opportunities, which is a major determinant of the locational choices of households. There are two consequences of these interactions: First, the underlying cause and effect relationships are obscure—does industry follow people or do people follow industry? Researchers have not yet succeeded in disentangling these complex, dynamic relationships.[7] Hence, the available estimates of the magnitudes of policy impacts are suspect. Second, the distinction becomes blurred between federal policies that affect the business component of the local revenue base and those that affect the residential component. It is usually clear in which sector the initial impact occurs, but the linkages between the two sets of locational decisions are so strong that anything that affects urban demography is liable to influence urban business activity, and vice versa. Further exploration of these intersectoral connections is a high priority item on the urban research agenda.

Little attention has been paid to the question of how large an increment in the

[7] In the *Economic Development* report, Vaughan cites mounting evidence of the importance of "jobs following people," as opposed to the more-commonly cited phenomenon of migration responding to economic development.

local tax base is likely to follow from a given increase in local economic activity. The increments in payrolls or business assets per unit of sales or value-added vary greatly from one sector of industry to another. Among the 500 largest U.S. corporations, for example, sales per employee vary from $257,000 in petroleum refining and $97,000 in mass communications to $27,000 in apparel and $36,000 in the office equipment industry. There is roughly a ten-to-one range among the major industries in the value of corporate assets per employee.[a] These large differences, though representative only of large firms and not of industry as a whole, indicate that a given volume of output may represent many times more workers and only a fraction of the capital in some industries as in others. Because contributions to the local property tax base are related to the magnitude of business investment in a community, while contributions to taxable payrolls and incomes are related to employment and wages, it is evident that equal levels of business activity, measured by output or sales, may have widely varying fiscal implications for a community, depending upon their sectoral compositions.

An attempt to translate levels of activity in different sectors into local "tax base equivalents" would encounter serious problems of data availability. Information on numbers of employees and sizes of payrolls by sector and by area is available from three federal economic censuses—Manufactures, Wholesale and Retail Trade, and Selected Services. However, data on value-added are provided only for the manufacturing sectors and data representing the relationship between output or value-added and the value of physical capital are not provided. The studies of industrial economics that do focus on capital-output ratios generally do not provide geographically disaggregated information. A number of important sectors, including construction, transportation, public utilities, financial services, and some business and personal services are not covered at all by the economic censuses. (A discussion of these and other weaknesses of the existing data appears in the appendix of the *Economic Development* report.) Because of these gaps in coverage, it would not be possible today to develop a consistent set of estimates of the amounts of invested capital, jobs, and payrolls that would be generated in a given area by a specified increment in the activity of a given sector.

Even with adequate data in hand, it would be no easy task to translate information on capital stocks into taxable property values. There are many intervening variables. Typically, only tangible, physical capital is taxed. In many places, the tax base includes "real" but not "personal" property. Where different kinds of property are included, they may be assessed at sharply different rates. The problems of tax base assessment are generally more severe for business than for residential property. Assessments per dollar of "true" asset value vary greatly by locality, by category of property, and by sector of industry. It would be a truly formidable task to quantify the increment in taxable revenue attributable to an investment of given magnitude in each of a number of industries in different parts of the country.

The variations in capital and labor intensities that exist among industries and the multidimensional character of the business portion of the tax base pose problems for government agencies. They raise questions about the policies that can or should be followed, either locally or by the federal government, to encourage economic growth in cities. The possibility exists of conflict between the goals of job

[a] "The Fortune Directory of the 500 Largest U.S. Industrial Corporations," *Fortune*, May 1977.

creation and tax base enhancement that motivate efforts of local officials to attract industry. On the one hand, a labor-intensive industry may provide many jobs but only a modest contribution to local property taxes, and the local services consumed by the workers may cost more than what the industry contributes to local revenue. On the other hand, a capital-intensive firm may contribute substantially to the local property tax rolls, but only slightly to local demand for labor. Extensive empirical work would have to be done to sort out the direct contributions of different types of firms to the business property tax base, to locally taxable income and sales, and to demands for local public services.

EFFECTS OF FEDERAL POLICIES ON THE DEMAND FOR LOCAL PUBLIC SERVICES

Much more attention has been given to the federal government's role in augmenting the revenue of the local public sector than to its influence on the level of demand for local services and local expenditures. However, most federal policies that affect the local revenue base also influence the levels of demand for services by households and business firms. The federal role is indirect. Federal actions can influence service demands by altering relevant economic and demographic characteristics of households, such as the poverty rate and the number of school-age children per urban family. Similarly, federal actions affecting business location decisions may alter relevant characteristics of local economic activity, such as requirements for water, sewage, and fire protection services. This subsection presents a brief overview of the channels by which such federal influences may be exerted. Related information on the responses of local governments to changes in demographic variables and other demand factors is presented in Section VI.

As was explained in Section III, the demand for local expenditures can be decomposed into three major factors: (1) an index of local service "needs," which mainly reflects the composition of a jurisdiction's population; (2) an index of the cost of providing services in the jurisdiction; and (3) an index of the scope of fiscal responsibility of the jurisdiction. This discussion pertains only to the "need" factor. Potential federal influences on the scope of local fiscal responsibility were discussed in Section IV. Some effects of federal policy on local service costs were discussed in Section IV and others are discussed below.

To avoid misconceptions, the definition of the "needs" concept, introduced in Section III, is restated here. The term "need" does not refer to any sort of absolute service requirement, but rather to the *relative* levels of demand for local public services by households with different characteristics. For instance, a household with school-age children "needs" more services, other things being equal, than a household with no children because it has a demand for local elementary and secondary education; a low-income household has greater than average "needs" because it receives transfer payments and consumes social services that higher-income households do not consume; a household that owns an automobile represents more service "needs" than an otherwise similar household with no car because the former household makes use of streets and roads. Other household characteristics that may be related to service demands include family structure (e.g., whether there are two parents in the home), the ages of household members,

and the form of housing tenure. In addition, two sets of nondemographic variables would have to be taken into account in a full discussion of service needs: (1) the characteristics of local business and industry that affect per capita levels of public service consumption by the business sector; (2) the physical characteristics that can cause service demands to vary among areas even in the absence of demographic or business structure variations—e.g., differences in climate and topography. Section III explained how an index of the relative per capita service needs of a jurisdiction could be constructed as a weighted sum of the incidence of each demand-related demographic characteristic in the local population, with the weights representing the relative costs of providing the different services consumed by each population group. High values of such an index would be associated with large proportions of the population in school, large proportions of poor or welfare-eligible households, large numbers of female-headed households with children, and so forth.

Modes of Federal Influence

Federal policies can affect the value of the need index for a jurisdiction by inducing changes in the demographic or economic characteristics of its population. Three examples of such policies follow. First, federal programs that generate income for lower-income urban households (e.g., job creation programs or a negative income tax) reduce some households' consumption of welfare and related services, thereby reducing the need index. Second, federal actions that induce families with school-age children to leave the central cities for the suburbs lower the education component of the need index in the cities and raise it in the suburban jurisdictions. Third, federal programs that attract low-income households to the urban Northeast from other regions raise the welfare and social services components of the need index at the points of destination and lower them at the points of origin. It is useful to distinguish between policies that alter the circumstances and service consumption patterns of existing urban households and those that alter service demands by redistributing households between cities and suburbs or among regions. The first of the above examples illustrates the former effect; the second and third examples, the latter. Some federal actions may produce both kinds of effects (typically, an immediate effect on the existing population and a longer-run locational effect), and the two effects may be offsetting or mutually reinforcing.

Figure 5.2 summarizes the channels of federal influence on demands for local services and identifies some of the principal intervening variables. Federal influences on residential location and housing decisions are shown as affecting household income and demography, and thereby altering household demands for services. Federal policies affecting business location decisions are shown as altering such service-related variables as the level of output, the nature of the inputs and technology used in production, and the level of the capital stock. In addition, both residential and business location decisions are depicted as influencing the density of population and development and land use patterns more generally. These variables are determinants of demands for highways and other transportation facilities, water and sewer services, and police and fire protection. The linkages between business and residential location decisions are not shown explicitly in Fig. 5.2 because they have already been shown in Fig. 5.1.

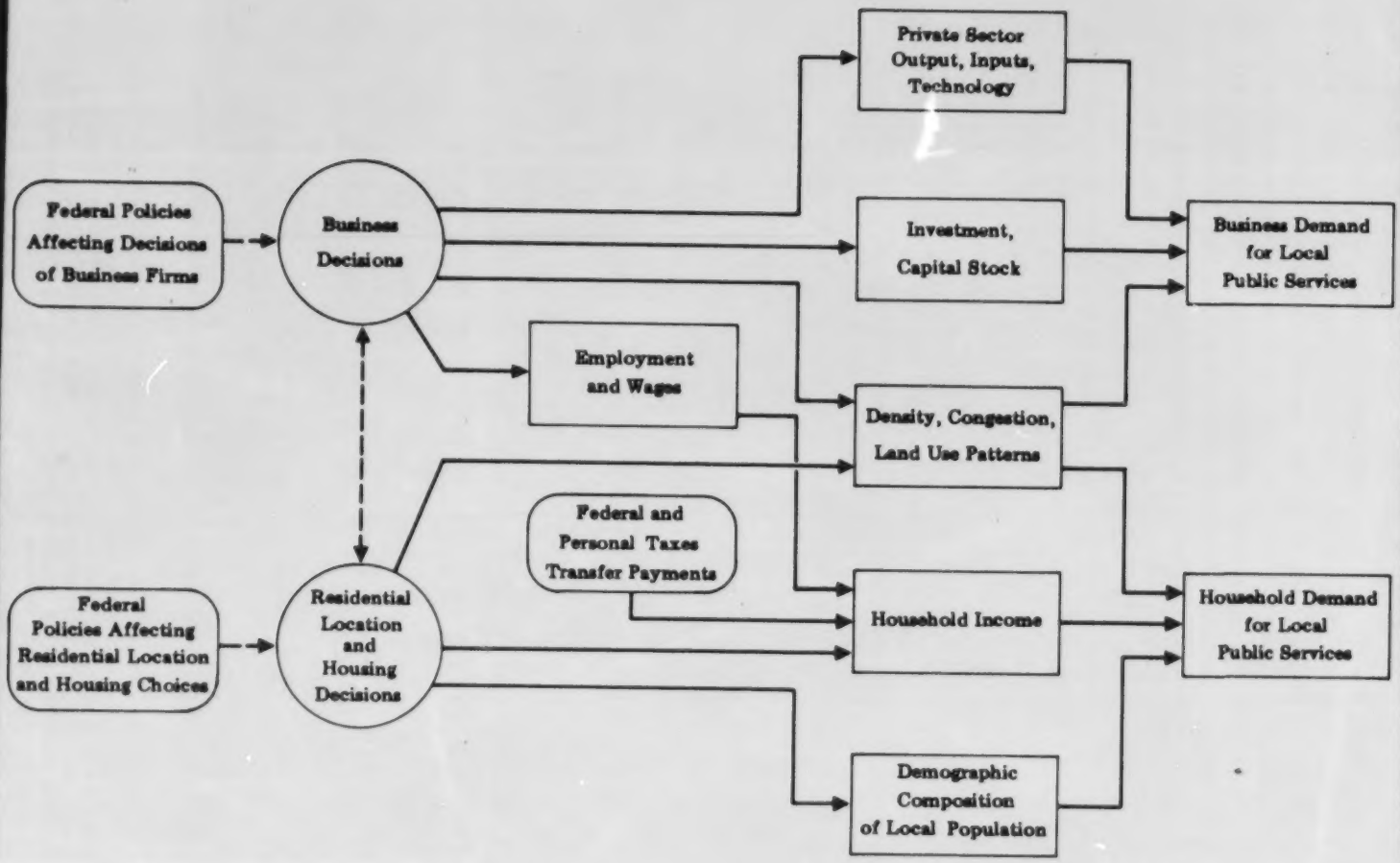
Private Sector Output, Inputs, Technology
Federal Policies Affecting Decisions of Business Firms
Business Decisions
Investment, Capital Stock
Business Demand for Local Public Services
Employment and Wages
Density, Congestion, Land Use Patterns
Federal and Personal Taxes Transfer Payments
Federal Policies Affecting Residential Location and Housing Choices
Residential Location and Housing Decisions
Household Income
Household Demand for Local Public Services
Demographic Composition of Local Population

Fig. 5.2—Channels of Federal Influence in the Local Tax Base

Although the same federal policies may affect both household demands for services and the residential tax base, the linkages from policies to levels of service demand are more complicated than the linkages from policies to the tax base. The revenue base represented by a given household depends mainly upon its income. The service demands of a household are also associated with income, but in addition they depend strongly on such family structure variables as age composition and number of children. Therefore, when a middle-class family with an income, say, 30 percent above the mean moves from the city to a suburb, the effect on the city's tax base is unambiguous: The per capita residential tax base declines by a modest amount. But if the family has a child in school, it is not clear whether per capita service demand rises or falls as a result of the move. Does the family's above-average consumption of public schooling outweigh its below-average consumption of public welfare and related social services? The service consumption pattern of a given household, or type of household, is multidimensional, whereas the tax base contribution of a household is more nearly unidimensional (i.e., even though there are different components of the tax base, the level of household income serves as a proxy for them all). This makes it much more difficult to estimate the effect of a given type of household move on the aggregate demand for services than it is to estimate the effect on the tax bases of the places of origin and destination.

A general idea of the potential importance of changes in various demand factors can be obtained from the breakdown of local expenditure by function presented in Table 5.2. When all categories of local government are considered, the education function accounts for by far the largest share of local spending. This implies that changes in the pupil-population ratio, the main demographic factor related to demand for education, should have greater leverage than other demographic factors over the aggregate demand for services. If per pupil spending for education remained constant, a 10-percent reduction in a jurisdiction's pupil-population ratio would reduce total local spending by 4.5 percent.[9] In comparison, the cluster of functions for which demand levels are associated wholly or in part with poverty—public welfare, health and hospitals, police and fire protection, and housing and urban renewal—account for only 23 percent of local spending, of which a considerable portion would have to be incurred even if there were no poverty at all. Thus, it takes a much larger change in the incidence of poverty to have the same fiscal impact as a given change in the proportion of school-age children in the population. The remaining functions are much more difficult to attribute to particular population subgroups and should probably be considered, as a first approximation, as services uniformly demanded by the population, and therefore insensitive to shifts in demographic composition.

When only city government finances are considered, a different picture emerges. Because most local school systems are operated by special-purpose districts rather than by cities, education accounts for only about 15 percent of municipal outlay. Therefore, the fiscal condition of city governments is much less sensitive

[9] In fact, there is reliable evidence, summarized in Section VI, that the educational expenditure per pupil does not remain constant, but declines, when the pupil-population ratio increases. Typically, therefore, a locality with a 10 percent higher pupil-population than another would spend less than 10 percent more for schooling, other things being equal. Similarly, it is likely, although the evidence is less conclusive, that outlays for other "people-oriented" services tend to increase less than in proportion to demographic indicators of service demand.

Table 5.2

Expenditure by Function, All Local Governments and City Governments, 1974-75

Function	All Local Governments		City Governments	
	Direct General Expenditure ($ billions)	Percentage of Direct General Expenditure	Direct General Expenditure ($ billions)	Percentage of Direct General Expenditure
All Functions	143.1	100.0	48.7	100.0
Education	65.0	45.4	7.2	14.7
Highways	8.3	5.8	3.9	7.9
Public Welfare	9.7	6.8	3.9	7.9
Health and Hospitals	9.9	6.9	3.6	7.2
Police Protection	7.1	4.9	5.3	10.8
Fire Protection	3.5	2.4	2.9	6.0
Sanitation and Sewers	7.4	5.2	5.2	10.6
Parks and Recreation	3.5	2.4	2.3	4.7
Housing and Urban Renewal	3.1	2.1	1.8	3.6
Interest on General Debt	5.5	3.8	2.3	4.7
All Other	20.4	14.3	10.5	21.6

SOURCE: U.S. Bureau of the Census, *Governmental Finances in 1974-75*, GF75, No. 5, and *City Government Finances in 1974-75*, GF75, No. 4, Washington, D.C., 1976.

to the proportion of school-age children in the population than is the fiscal condition of the local public sector as a whole. However, the functions that are related to the incidence of poverty, dependency, and social pathology are more prominent in municipal budgets than in the consolidated budget of the local public sector. Welfare, health and hospitals, police and fire protection, and housing and urban renewal account for more than 35 percent of city government spending. Thus, city finances are likely to be relatively sensitive to changes in the incidence of poverty and related variables.

The difference in the importance of particular demographic factors to city government budgets and local government budgets in general has policy implications. Certain kinds of demographic shifts that might be fiscally favorable for a city might be unfavorable for the school district or county serving the same population, or vice versa. For instance, the departure from the city of middle-class families with school children might provide fiscal relief to the local school district, while the municipal government might find that the resulting loss of tax base was only partly compensated by the decline in demand for strictly municipal services. There can be conflicts between what is good or bad for the local public sector as a whole and what is good or bad for individual local governments.

Table 5.2 also provides some basis for assessing the relative importance of business and household demands for local public services. Approximately 62 percent of all local government spending is for functions that are unambiguously demanded and consumed by households—education, public welfare, health and

hospitals, and parks and recreation. Services that benefit both households and business firms, such as police and fire protection, highways, sanitation and sewers, housing and urban renewal, natural resources, and air and water transportation, account for about 22 percent of local outlays. Assuming that half of such outlays (and an appropriate share of "overhead" expenditures of local governments) are incurred to serve firms, only about 15 percent of total local spending would be directly attributable to business demands for services. When only city governments are considered, however, business demands seem more important. The strictly "people-oriented" services account for only about 35 percent of municipal outlays, while the services consumed by both households and firms account for approximately 41 percent. It appears, therefore, that business demands could account for roughly twice as great a share of the municipal budget as of the consolidated budget of the local public sector. The relatively minor share of local service demand directly attributable to the needs of firms does not necessarily imply that federal policies affecting business location decisions will have a minor effect on the total demand for services. Policies that initially affect business firms may have repercussions in the household sector (as, e.g., when housing developments spring up around a new industrial area). A full assessment of the fiscal impact of a federally induced shift in business location patterns should take account of the service demands attributable to relocating households as well as the demands generated directly by the relocating firms.

The Net Fiscal Impact of Demographic Change

The foregoing discussion underscores the importance of considering the *net* fiscal consequences of multiple effects of federal policy. Virtually any federal action that induces a change in the composition of an urban population will affect both the local revenue base and the level of public service needs. The two effects may work in the same or in opposite directions. The departure of the middle-class family with school children provides an example of offsetting effects—a reduction in the per capita tax base coupled with a reduction in the demand for schooling. The migration to the city of a welfare-eligible family provides a case of reinforcing effects—doubly so if that family also has children in school. Simultaneously, the per capita tax base declines and demands for public schooling and public welfare increase. The revenue and expenditure effects must be considered together to determine whether federal action has helped or harmed the city.

From a purely fiscal point of view, each household can be perceived as representing either a net dividend or a net deficit to the local jurisdiction. Households that contribute relatively more to the tax base than they consume in services provide a surplus that can be used to finance services for other residents. Households that consume relatively more than they contribute to revenue draw subsidies from other members of the community. At present, not enough is known about the relationships between public service consumption and household characteristics to compute the net fiscal surplus or deficit associated with each combination of economic and demographic characteristics. Such calculations encounter multiple complexities: First, it would be necessary to take into account not only service consumption and contributions to local revenue, but also the relationship of state and federal aid payments to the presence of certain kinds of households

(e.g., the cost that a school-age child imposes on a locality is partly offset by state aid payments). Second, some method would have to be devised to deal with true "public goods"—i.e., those local services that are consumed collectively, and whose consumption by one individual does not reduce the amount available for consumption by another. Third, the fiscal surplus or deficit associated with a given type of household will differ depending upon the specific jurisdiction (and state) in which the household is located. This is because there are great differences among jurisdictions in the kinds of services offered, the level at which each service is funded, and the mix of taxes that is used to raise local revenue. A given household could represent a net surplus to the local treasury in one community and a net deficit in another.

The net fiscal impact of demographic change is related to several ongoing controversies about federal social policy. One is the debate about welfare reform. If interstate differentials in income maintenance and social service programs are a cause of the poverty concentrations in the urban Northeast, and if those concentrations, in turn, place financial burdens on the cities, then the design of a reformed welfare system could have major fiscal implications for the local public sector. Unfortunately, there is conflicting empirical evidence on the degree to which differential welfare benefits are a significant influence on the locational choices of the poor (see the *Population and Residential Location* report, Sec. VII). The present knowledge base is inadequate to quantify the effect of any particular welfare reform scheme on the distribution of eligible beneficiaries within metropolitan areas and among regions. A similar problem exists with respect to housing policy. One of the effects of building public housing or directing low-income housing assistance funds to a community is likely to be an influx of households in the eligible low-income range. Such households are likely to consume more in services than they generate for the locality in taxes and grants combined. This is one of the reasons (in addition to class or racial aversion) that is often cited for suburban resistance to low-income housing programs. An even more controversial subject is federal policy concerning school desegregation. A debate has been going on over the contribution of such policies—especially busing programs—to white and middle-class outmigration (see the *Population and Residential Location* report, Sec. XI). The potential fiscal effects on central cities and suburbs of the movement of middle-class families with school children from the former to the latter have received little consideration during these discussions. In all these areas, federal actions have been taken (and more actions are likely to be taken in the future) in the absence of information on either their locational effects or their short-run or long-run fiscal consequences. This should indicate a high priority for efforts to predict both types of effects and to examine carefully the locational incentives implicit in program designs.

THE EFFECTS OF FEDERAL POLICY ON THE COST OF LOCAL PUBLIC SERVICES

There are several ways in which it makes sense to define "service costs" in a discussion of how costs are influenced by federal actions. In Section III, service cost was defined as an index of the prices (includng the wages of its employees) that a

jurisdiction pays to obtain resources. By that definition, "cost" means the cost of resource inputs. An alternative is to define cost as the number of dollars required to obtain a unit of service output. By the latter definition, the index of a jurisdiction's service costs would depend both on input prices and on the jurisdiction's productivity in converting resource inputs into services. This discussion focuses on cost per unit of input but also notes ways in which federal activities might influence the productivity of the local public sector. Another definitional issue is whether cost should be measured in absolute or relative terms. For the purpose of analyzing federal impacts on fiscal conditions in different jurisdictions or in a given jurisdiction at different times, relative measures of cost are usually of greater interest. Depending on the issue at hand, the appropriate concept may be cost in a given locality relative to the national average, cost relative to the level prevailing in a specified base year, or costs in the local public sector relative to those in the private economy.

Direct federal influences on public employee wages and other public sector costs have already been discussed in Section IV. This discussion considers the indirect effects on public service costs of federal policies that impinge initially on the private sector of the economy.

Macroeconomic Policy and Inflation

The general economic policies followed by the federal government affect the absolute level of costs (the general price index) in both the public and private sectors. These policies include fiscal and monetary policy, automatic stabilization programs, certain aspects of tax policy, job-creation programs and, in some periods, direct wage and price controls. There are major unresolved controversies about the effects that these policy instruments have, singly and in combination, on the principal economic variables, including the general price level.[10] There is little doubt that inflation, whatever its causes, significantly affects conditions in the state and local public sector. In the long run, one might argue, the effect of a general price increase on the public sector should be minimal. To the extent that the price rise is general, prices in all sectors are affected uniformly. There is no change in the real burden to the private sector of sustaining a given real level of public sector activity. However, in the shorter run, while inflation continues, the public sector is likely to have difficulty adjusting. Because the local property tax base is inelastic, local governments must raise tax rates more frequently during an inflationary period to sustain existing service levels. These highly visible rate increases are likely to encounter more intense voter resistance than would equivalent increases in real tax burdens during a noninflationary period. At a minimum, there are likely to be lags in the adjustment of real revenue to the levels that would prevail under a regime of stable prices. Moreover, the tightening of local budget constraints that results from the lagged adjustment in own-source revenue is likely to be aggravated by lags in adjustment of intergovernmental aid from state and federal sources. Therefore, the local public sector will generally have more limited fiscal options

[10] Among the points at issue is the fundamental one of whether any systematic federal macroeconomic policy—be it fiscal or monetary—can have any lasting effect on real economic magnitudes and rates of inflation in the short run (e.g., over the business cycle). For reviews of recent controversies on this subject, see Modigliani (1977) and Gordon (1977).

during an inflationary period than it would enjoy in an otherwise similar period with stable prices.

Federal Effects on Public Sector Wages

In addition to determining the general price level in the economy, federal policies may exert some influence over the relative prices of the specific resources that are used in large amounts by the local public sector. Local government is a labor-intensive activity, and the most important price it pays is the wages of public employees. Few federal actions can be identified that affect local employees' wages directly. Thus far, employees of state and local governments are not even covered by the standard framework of wage and hour legislation and labor market regulation that applies to most of the private sector. Nevertheless, there is evidence that federal policies may affect public sector wages indirectly and, in particular, that they may influence the relative levels of public employees' wages in different parts of the country.

There is a substantial and growing economic literature on public sector wage determination. This literature includes several dozen empirical studies of the effects on public sector wages of local economic conditions, characteristics of local labor markets, fiscal variables, and aspects of collective bargaining and unionization.[11] But because the primary purpose of the work has been to estimate the effects of collective bargaining in the public sector, few of the empirical analyses contain anything that could be identified as a federal policy variable. Nevertheless, the results do support some inferences about effects on the public sector labor market that federal policies have had in the past and could have in the future.

The variables that appear most consistently in the wage determination models as determinants of public sector wages are levels of wages in private industry. The main reason for the relationship is that the public and private sectors must compete for workers in what is essentially a single labor market. The private wage is the "opportunity wage" for public employees. Therefore, in the long run, public sector wages must remain comparable with wages in alternative occupations in private business. This does not mean that wages will be identical in similar occupational categories in the two sectors. There are certain nonpecuniary rewards and penalties of employment that differ between the sectors (e.g., the availability of civil service protection in public employment) and that may be reflected in differential wages. Also, some authors have pointed to characteristics of the public sector that tend to inflate its wages above the levels needed to compete effectively in the labor market.[12] Overall, however, rates of change in public sector wages tend to follow rates of change of wages in private employment. Moreover, the fairly common practice of setting public sector wages according to comparability studies with the private sector strengthens and accelerates this tendency.

The federal government affects private sector wage rates in a number of direct ways. Specific manifestations of federal involvement include the wage and hour laws, the complex legal and regulatory framework for collective bargaining, the

[11] For a review of the literature on determinants of public sector wages and employment, see Victor (1978).

[12] For instance, Victor (1977) shows that the desire of elected local officials to maximize votes may lead to both higher public employment and higher wages for public employees than would exist in the absence of this political factor.

occupational health and safety laws, and the civil rights laws pertaining to discrimination in employment. At least one of these legal systems, the federal framework for collective bargaining, has an impact that is uneven among regions. Under the well-known Section 14B of the Taft-Hartley Act, for example, states are permitted to enact "right to work" laws that make it illegal for unions to negotiate closed-shop contracts with employers. Such laws have been enacted primarily in southeastern and western states, and the existence of this restriction on union activity may be one of the factors that keeps wages relatively low in those states compared to the more urbanized regions. More generally, because of the uneven distribution of unionized labor among regions of the country and between central cities and suburbs, any federal action that works to strengthen the hand of one side in the collective bargaining process is likely to have an uneven impact on wages in less-urbanized and more-urbanized areas. Because wage rates in the private and public sectors are linked, any federal policy that contributes to private sector wage differentials also will contribute to differential public sector costs. However, the overall trend during the post-war period has been toward reduced interregional differences in wages. The effect of this trend should be pro-urban, in the sense that the cost advantages of the less-urbanized regions are gradually being eroded.

The empirical wage determination studies also confirm that public sector unions and collective bargaining activity have significant effects on public employees' wages. Specific estimates vary, depending on the category of workers considered (most studies have focused on public school teachers, policemen, and firemen), the types of jurisdictions that were compared, the years for which data were available, and the aspects of collective bargaining represented in the models. Nevertheless, many estimates of the union effect cluster in the range of a 5 to 15 percent increment in the wage rate.

During the last few years, public sector unionism has been growing and the state-level legal framework for collective bargaining has been developing rapidly. Many states now mandate or permit collective bargaining that forbade it only a few years ago or that had no public sector collective bargaining laws at all. This development has not been geographically uniform. The states that grant the broadest rights and protections to public employee unions are generally the urbanized industrial states in which private sector unions are also strong. Therefore, to the extent that unions and collective bargaining raise costs in the public sector, the effect has been to increase the relative costs of public services in the more urbanized areas.

As was explained in Section IV, the federal government does not currently regulate collective bargaining in the state-local sector and attempts to establish a federal legal framework have been sidetracked by the *National League of Cities* v. *Usery* decision. Nevertheless, it is likely that federal policies concerning private sector unionism and collective bargaining have had "spillover" effects in the public sector. There is evidence that the development of public employee unions and their success in collective bargaining is related to the level of public acceptance and political support for unionism in general in a community, which is related, in turn, to the state of development of private unions (Victor, 1978). Therefore, to the extent that federal policy has contributed to differential rates of private unionization between more and less urbanized places, it has probably also contributed indirectly to differentials in public sector union activity.

Federal Influences on Nonwage Costs

There are a number of ways in which the federal government influences the prices of resources used by local governments, apart from influencing the general price level in the economy. One input price that has been directly affected by federal action is the price of energy. The impact of federal energy policies has been uneven geographically, with the greatest burdens falling on local governments in the Northeast region.[13] However, energy accounts for a very small fraction of public-sector spending and it is unlikely that federal actions in the field will have a significant impact on urban fiscal conditions. Another price directly affected by federal policy is the cost of construction. The federal government influences construction costs with its housing assistance and construction subsidy programs, its public works programs, and its monetary and credit policies. There is some direct federal control over costs of local construction financed by federal grants in the form of "prevailing wage" provisions mandated by the Davis-Bacon Act.[14] Also, there is substantial direct federal involvement in labor relations in the construction field; an example is the recent Congressional debate over the proposal to legalize "common situs" picketing. It is not apparent that these federal policies have differential regional or urban-suburban impacts, except insofar as such differentials result from the uneven distribution of federal construction grants. A third price that the federal government affects directly is the interest rate that states and localities must pay when they borrow money. The municipal bond interest rate is influenced by the rate of inflation and by specific federal monetary and credit policies, including the level of borrowing by the federal government itself. In addition, the municipal bond rate has been significantly affected (lowered) by the federal tax deduction for municipal bond interest, a phenomenon that was discussed in Section IV.

The Federal Influence on Public Sector Productivity

It has not been possible within this study to review the massive literature on local government productivity.[15] In any event, the bulk of that literature has to do with problems of measuring productivity, technological and management aspects of service production and delivery, and economic evaluation of alternative methods and systems for producing local government services; little of it has anything to do with the role of the federal government.

The main federal policies that impinge directly on local government productivity seem to be those involving research and development, demonstration, dissemination, and technical assistance activities. Federal agencies are the major source of support for R&D on education, health, transportation, law enforcement, and other state and local services. The Department of Health, Education, and Welfare, the Department of Transportation, the Department of Labor, and the Law Enforce-

[13] The influence of federal energy policies is discussed in Section VI of the *Economic Development* report.

[14] Under the Davis-Bacon Act, the minimum wage payable to construction workers under any federally aided construction project must be the "prevailing wage" for each category of worker in the area. In practice, this becomes the union rate for that area, if there is one. In any event, the prevailing wage varies geographically and is higher in the older urban centers than elsewhere.

[15] General references on state and local government productivity include Ross and Burkhead (1974), Hatry and Fisk (1971), and Holzer (1976).

ment Assistance Administration are major sponsors of R&D related to the operating programs that they support with grants-in-aid. In addition, the Department of Housing and Urban Development and the National Science Foundation sponsor more general research on state and local services. The state-local sector also benefits indirectly from other federal efforts to advance technology—e.g., in data processing and telecommunications, which have many public sector applications.

Both the research and development efforts and the more direct attempts of federal agencies to encourage innovation in the state-local sector are extremely difficult to evaluate. Although a large evaluation literature has developed around the federally aided social programs, the findings are not readily aggregatable or generalizable, nor translatable into productivity terms. The development of evaluation methodology has itself been a major thrust of the federal government. In the long run, institutionalization of evaluation and accountability systems at the local level, which are increasingly being required or encouraged by federal grant programs, may prove to be contributions to public sector productivity as important as the specific technologies and innovations that federal agencies have tried to develop and disseminate.

VI. LOCAL FISCAL RESPONSES TO FEDERAL POLICIES

The discussion of measures of fiscal condition in Section III emphasized the distinction between fiscal opportunities, the budgetary alternatives available to localities, and fiscal outcomes, the levels of expenditures and taxes actually chosen by local governments. It was shown that the fiscal opportunities of a jurisdiction depend on the balance among a number of factors, including the community's revenue base and access to external aid, the demand-related characteristics of its population, the costs of providing services, and the scope of local fiscal responsibility. Sections IV and V reviewed the main federal policies that have affected, or could affect, each of these factors. Knowledge of the effects of federal actions on the opportunities available to a locality does not, in itself, yield information about the consequent changes in fiscal outcomes. There is no rigid connection between a change in a jurisdiction's fiscal opportunity schedule (budget constraint) and changes in the levels of local spending and taxes. For instance, a federal agency might make funds available to cities to stimulate spending for social services but the response of the locality might be to substitute some of these funds for local revenue and to lower its own taxes by a corresponding amount. Or, some act of the federal government (e.g., an increase in support for public housing) might trigger an influx of low-income, low-taxpaying households into a community, thereby reducing the per capita tax base. The local response could be to reduce outlays in proportion to the loss in per capita revenue, to increase tax rates by enough to compensate for the tax base decline, or to compromise between those two policies. The information that federal intervention has caused the tax base to decline is insufficient to predict the local reaction. In this section, an attempt is made to establish the connection between federal policies and fiscal outcomes by reviewing what is known about local fiscal responses to externally caused changes in fiscal conditions.

Local fiscal behavior has been investigated in numerous theoretical and empirical studies of expenditure determinants. These studies examine the relationships between state and local fiscal choices and such independent variables as the amount and form of external aid, the per capita income and tax base of a jurisdiction, the demographic composition of a community, and the price of public services. This section provides a review and synthesis of that literature. The first subsection is an overview of the content and development of the determinants studies and a general assessment of the state of the art. The following subsections discuss empirical findings that can be linked to different categories of federal policies. Also included is a discussion of feedback effects within the public sector, such as the effect of the local tax rate on the tax base and the effect of the level of expenditure on the demand for public services.

OVERVIEW OF THE LITERATURE ON EXPENDITURE DETERMINANTS

The modern literature on expenditure determinants is generally considered to

have started with Fabricant's study (1952) of interstate variations in the combined spending of state and local governments. The topic was taken up several years later by a number of authors, including Fisher (1961), who replicated Fabricant's work; Scott and Feder (1957), Brazer (1959), and Sacks and Hellmuth (1961), who studied expenditures by municipalities; and Hirsch (1960) and Renshaw (1960), who carried out early studies of public school spending. Since then, the field has expanded to include studies of all levels of state and local government and a broad range of government programs and functions.[1]

The early expenditure determinants studies had four important common characteristics:

First, they were almost entirely *atheoretical*. The authors developed no explicit models of state or local behavior and so were forced to rely on ad hoc arguments for inclusion of variables (often the only justification that the variable "works"). Interpretations and explanations of statistical results were equally ad hoc and thus often inconclusive.

Second, the early empirical work consisted almost entirely of fitting single, linear regression equations to cross-sectional data for a single year. Almost always, these equations were of the form

$$E = b_0 + b_1Y + b_2G + b_3Z ,$$

where E = expenditure per capita (sometimes per pupil, in the case of school spending studies) by some level of government or for some government function,
Y = income per capita (or tax base per pupil, in the case of most school spending studies),
G = intergovernmental aid per capita (or per pupil) to the governmental unit or for the function under study, and
Z = other characteristics of the state or locality.[2]

Third, the specifications of the early models were incomplete in some important respects. In most studies, price variables were omitted entirely. Distinctions were not made among the major types of aid—open-ended and closed-ended matching and lump-sum grants and unrestricted, block, and categorical grants. Few attempts were made to take account of simultaneous causal relationships in the intergovernmental finance system, such as the influence on federal and state aid variables of some of the same economic and demographic variables as were hypothesized to affect expenditure decisions directly. These omissions stemmed from the absence of a theoretical base for deriving empirical propositions about expenditure determinants.

Fourth, the main purpose of many of these studies was to "explain" as much of the observed variation in expenditures as possible (which meant, in practice, to obtain a high regression R^2), not to confirm specific hypotheses about expenditure

[1] For reviews of the expenditure determinants literature at various stages of its development, see Miner (1963), Bahl (1968), Gramlich (1970), Fredland (1974), Barro (1974a) and Gramlich (1976a).

[2] There were some variations: Fisher (1964) used several income-related indices instead of income itself, Kurnow (1963) used a log-log form of the equation, and Bahl and Saunders (1965) fitted the equation in difference form; but in essential respects this characterization applies to the pre-1968 work.

determinants or to obtain policy-relevant conclusions. The emphasis began to change after publication of an article by Osman (1966), which focused attention on the impact of intergovernmental aid as the main phenomenon to be studied. Since about that time, the question of the fiscal impact of intergovernmental grants has overshadowed most other expenditure determinant issues.[3]

About 1968 there were several qualitative advances in the state of the art. The theoretical work of Smith (1968), Wilde (1968, 1969), and others provided a more substantial theoretical framework for analyses of grant impacts than had been available for the pre-1968 empirical studies. Using graphical indifference curve methods, these authors showed the importance of distinguishing among different forms of grants in expenditure determinants models. This cast doubt on the validity of the earlier empirical studies, which had ignored such distinctions, or at least raised questions about the interpretation of their results.

Simultaneously, the empirical analyses became more varied and elaborate and departed from the single-year, cross-section mode. Notable in this respect are the studies of Pogue and Sgontz (1968), who were the first to use pooled time-series, cross-section data, Gramlich (1968, 1969), who used time-series data (but for the nation as a whole, not for individual states or localities), and Horowitz (1968), who constructed a multi-equation model that took account of simultaneous relationships in the intergovernmental fiscal system.

Most important, the first studies using explicit, constrained-maximization models of state and local budgetary behavior appeared at about the same time. These models, discussed partially in Section IV, derive from the assumption that local public officials seek an optimal balance between public services and private consumption in their communities (or between public services and taxes, in some versions). In making their choices, the officials are subject to a budget constraint, which reflects, among other things, the availability and form of intergovernmental aid. When these assumptions are specified mathematically, they lead to empirically testable propositions about the responses of expenditure and tax magnitudes to factors that enter into the budget constraint (including local income or fiscal capacity, aid, and prices) and variables that influence the decisionmakers' preferences (including socioeconomic characteristics of the community). The pioneering constrained-maximization studies include a study by Henderson (1968) and the previously cited studies of Gramlich (1968, 1969) and Horowitz (1968). Most post-1968 empirical studies have been based, either explicitly or implicitly, on propositions derived from the mathematical, constrained-maximization models. There have been many theoretical and econometric refinements, but no alternative has emerged as a serious competitor to the constrained-maximization approach.

More recently, the expenditure determinants field has developed in multiple directions, which are outlined as follows.

There have been several important extensions and refinements of the constrained-maximization models of state and local fiscal behavior and the econometric methods used to estimate the models' parameters. The indifference curve method of analyzing effects of different kinds of grants was developed by Wilde (1971) and

[3] The question of the fiscal impact of aid came to the fore sooner in studies of school district spending than in studies of spending by general-purpose governments. This reflected the much larger role of intergovernmental aid and the policy interest in the design of state aid systems in the school finance field.

Inman (1971) to encompass the full range of grant forms. Inman expanded the graphical approach into a unified treatment of the determinants of a jurisdiction's aggregate spending, expenditure composition by function, and revenue composition by source. The mathematical theory of fiscal behavior and the response to grants was elaborated upon in studies by Inman (1971, 1975), Ohls and Wales (1972), Bergstrom and Goodman (1973), and Gramlich and Galper (1973) and by several authors working on problems of school finance (see below). On the econometric front, O'Brien (1971) investigated the issue of simultaneous determination of expenditures and aid and demonstrated how sophisticated, multistage estimation techniques could be applied to pooled cross-section, time-series data. Inman (1971) developed empirical techniques for separating the lump-sum and matching components of grants to individual localities. Weicher (1972) investigated the interactions among magnitudes of spending and aid for different local government functions and for overlapping governments in metropolitan areas. Gramlich and Galper (1973) developed techniques for analyzing time-series and pooled cross-section data, including distributed-lag methods for examining the dynamics of the state-local response to external aid. Although these studies have by no means resolved all the outstanding theoretical and empirical issues, they have strengthened the theoretical foundations of the research considerably, produced more reliable empirical estimates, and focused attention on the remaining unresolved methodological and empirical questions.

Another thrust of the more recent work has been toward development of more specialized expenditure determinants models for use in analyzing expenditures in specific program areas. By far the most extensive development has been in the field of elementary and secondary school finance, which is discussed separately below. Specialized models have also been presented for such important state-local services as welfare and highway construction. The complexities of the welfare grant system have made it very difficult to construct an adequate model of fiscal response; however, important elements of such a model are contained in the contributions of Sloan (1972), Tresch (1975), and Orr (1976).[4] The problems in analyzing highway spending have been to represent the federal government's closed-ended matching grants accurately and to deal with specific issues pertaining to outlays for capital goods.[5] These issues have been addressed in studies by Phelps (1969), Enns (1974), and Miller (1974). There have also been program-specific studies in other areas—e.g., one on spending for police protection by Beaton (1974).

Much of the recent theoretical and empirical development of expenditure determinant models has taken place in school finance. More than in other fields, this work has been policy-oriented. Concern about the fiscal and distributional effects

[4] The special problem in welfare is that grantees must simultaneously choose the number of people to serve (or eligibility level) and the level of payment per recipient. Federal aid for state and local AFDC systems takes the form of an open-ended matching grant with respect to the number of people served. It may take the form of either a closed-ended or open-ended matching grant with respect to the payment level (see Hamilton and Rabinovitz, forthcoming, for details). For a discussion of the problems of constructing a model that reflects this complex system accurately and is feasible to estimate econometrically, see Sloan (1972).

[5] The difficulty in constructing a model of spending for highway construction (or for other capital goods) is that the policymakers are presumably more interested in the stock of highways than in the magnitude of te annual addition to the stock—i.e., the annual increment is not the appropriate "good" to include in a constrained maximization model. Attempts have been made to deal with the problem by constructing dynamic models of adjustment to the desired stock (e.g., Phelps, 1969).

of alternative state school finance plans has motivated much of the research. This concern has also led to a special emphasis on the effects of the level, form, and distribution of grants on public school spending. The detailed implications of constrained maximizing behavior by local school districts were developed in studies by Barro (1972a, 1974a), Stern (1973), and Grubb and Michaelson (1974). Empirical results for local districts, based on sophisticated econometric methods, were presented in the latter two studies. Results for states, using time-series and pooled cross-section data, appeared in Barro (1972b, 1974a). Methods for predicting local responses to new types of state school finance plans have been developed by Stern (1973), Grubb and Michaelson (1974), Firestine and Carvellas (1975), Feldstein (1975), and Ladd (1975). Additional research on these issues is currently under way.[6]

Despite the progress that has been made, the applicability of the results of expenditure determinants research to urban fiscal issues is limited by the units of analysis that have been chosen for these studies. It is relatively easy to analyze spending by the whole state-local sector, by the whole local government sector in each state, or by school districts, which are single-function jurisdictions, but it is more difficult to analyze spending by municipalities, which are multifunction governments with widely varying service responsibilities. The problem is that city governments in different states (and sometimes even different city governments within the same state) are not fiscally comparable units. Cross-sectional comparisons are difficult to make because expenditure variations are attributable as much to variations in fiscal roles as to variations in economic circumstances. Largely for this reason, relatively few expenditure determinants studies have taken the city as the unit of analysis. The authors who have looked at cities (e.g., Weicher, 1970, 1972; Inman, 1971) have confined their empirical analyses to certain "common functions" that nearly all cities perform.[7] Therefore, the models of city spending generally do not address the question of how municipal budgets are affected by demands for elementary and secondary education and welfare spending in urban areas or by state and federal grants for those functions.[8] Moreover, there have been relatively few studies that have taken either metropolitan areas or their central city and suburban components as the units of analysis. The few early studies that focus on those levels (e.g., Campbell and Sacks, 1967; Bahl, 1969) use relatively unsophisticated techniques and leave unanswered many questions about the causes of intermetropolitan and city-suburban fiscal disparities.[9] Also, as was explained in Section IV, there has been little empirical work on the expenditure behavior of state governments. The significance of this is that the effects of federal policies that

[6] The National Institute of Education recently contracted for a series of studies of school finance reform. One of these studies, being conducted by the Rand Corporation, is an econometric analysis of responses to reform in five states. A similar study of local responses to different school finance plans is being conducted by the Educational Commission of the States.

[7] "Common functions" consist primarily of police and fire protection, sanitation, streets and roads, and certain health services. The most important excluded items are public education and welfare, for which only a few cities have direct responsibility.

[8] Weicher (1972) does examime the effect of aid for public education on services other than education and the effect of aid for other services on public school spending; however, this is not equivalent to examining the effects of education demand factors on noneducational services, or vice versa.

[9] These early studies do not take account of the different forms of intergovernmental aid, do not allow for any price effects, and do not adjust for intermetropolitan differences in the scope of fiscal responsibility. They also rely entirely on simple least-squares estimation of single-year cross-sectional equations.

affect local government indirectly via the states (e.g., education, welfare, and highway policies) cannot be traced from the federal to the local level. The consequences of the missing information about the behavior of certain units and levels of government will become apparent in the following subsections, which review the available empirical information on local fiscal responses to different kinds of federal policies.

EFFECTS OF INTERGOVERNMENTAL GRANTS ON LOCAL SPENDING AND TAXES

Since the mid-1960s, estimation of the effects of intergovernmental grants on state and local spending has been the primary substantive objective of expenditure determinants researchers. Repeated efforts have been made to address the following questions about grant impacts:

1. How are the levels of spending and taxes of a jurisdiction (or set of jurisdictions) affected by the amount of aid that the jurisdiction receives?
2. How is the level of spending *for a particular function* affected by (a) the amount of external aid provided for that function, and (b) the amount of aid received for other functions or for general-purpose assistance?
3. How are the answers to (1) and (2) affected by the form in which aid is provided and the degree to which uses of grant funds are restricted?
4. How are the answers to all of the above affected by economic, demographic, and political characteristics of communities receiving aid?

The remainder of the subsection summarizes the empirical findings concerning these issues, assesses their quality and usefulness, and discusses the principal gaps in research coverage, data availability, and methodology.

The Effects of Aid on Total Spending by the Grantee

One important fiscal effect of a grant is its effect on the level of total spending by the grantee. Does each dollar of federal (or state) aid to a locality increase the spending of that locality by exactly one dollar? By more? Or by less? Theoretical models of expenditure determination imply that exact additivity ($1 increase in spending for each $1 increment in aid) will rarely be observed. The standard prediction from theory is that a locality will respond to a lump-sum unrestricted grant by substituting some of the grant funds for funds that would otherwise have been raised from local sources. Therefore, local spending would increase by less than the amount of the grant, and some fraction of the grant money would be transformed into local tax relief (see, among others, Wilde, 1971; Barro, 1974a; Gramlich, 1976). The theoretical models imply that an unrestricted, open-ended matching grant is likely to displace local revenue in some instances but stimulate it in others. The outcome in a particular instance depends on how strongly a particular locality responds to the effective price reduction implicit in the matching formula. The theoretical models also yield hypotheses about responses to closed-ended matching grants and restricted (categorical) grants of various kinds. The empirical findings concerning the effects of different types of grants have not always supported the theoretical predictions. As the methodology of the expenditure determinants stud-

ies has improved, the disparities have been narrowed, but some major unresolved conflicts still remain.

Studies of State-Local Spending. There have been many empirical studies of the effects of federal aid on the combined spending (total and by function) of state and local governments. The findings concerning effects of aid on total spending are summarized in Table 6.1. The degree to which the grants are estimated to stimulate or substitute for state-local spending from the grantees' own sources is indicated by the size of the reported aid coefficient(s). An estimated expenditure increase per unit of aid of less than 1.0 implies substitution; a value greater than 1.0, stimulation. The table also indicates the aid variables used in each model, the degree of aggregation of the analysis (state or national data), and the nature of the data base.

All the cross-sectional and pooled cross-section studies reported in the table (with the unexplained exception of Bahl and Saunders, 1966) find that federal aid *stimulates* aggregate state-local spending—i.e., grantees not only spend all their aid dollars but also are induced to raise additional revenues from their own sources

Table 6.1

Estimates of the Effect of Federal Aid on State-Local Spending

Study (Author)	Publication Date	Unit of Analysis, Sample, and Time Period	Aid Variable(s)	Estimated Expenditure Increase per Dollar of Federal Aid ($)
Sacks and Harris	1964	48 states, 1960	Federal aid	1.55
Bahl and Saunders	1965	48 states, 1957 and 1960	Change in federal aid	1.36
Bahl and Saunders	1966	48 states, 1962	Federal aid	.50
Osman	1966	48 states, 1960	Federal aid	1.94
Campbell and Sacks	1967	48 states, 1962	Federal aid	1.56
Smith	1968	50 states, 1965	Federal aid	1.66
Pogue and Sgontz	1968	50 states, 1958-64	Federal aid	1.81
Horowitz	1968	50 states, 1962	Federal aid	1.26
Gramlich	1968	U.S. time series, quarterly data, 1954-65	Unconditional block grant	0.28
			Matching grant	1.12
O'Brien	1971	48 states, 1958-66, pooled data	Federal aid	1.19
Gramlich and Galper	1973	U.S. time series, quarterly data, 1954-72	Unrestricted aid	.43
			Categorical matching grants	.80

that would not otherwise have been forthcoming. The estimates of the amount of additional state-local outlay that would be produced by an additional $1 of federal aid range from $1.19 to $1.94. In contrast, the two studies that used national time-series data, Gramlich (1968) and Gramlich and Galper (1973), find that federal aid substitutes for state-local expenditure, at least when the federal aid is not provided in the form of matching grants.

There are reasons to doubt the validity of findings from the cross-sectional studies that find a stimulative effect of federal aid on state and local spending. Uniformly, these studies fail to take account of the form in which federal aid was provided. They do not incorporate the post-1968 understanding of the importance of distinguishing among lump-sum, closed-ended matching, and open-ended matching grants and between categorical and general-purpose aid. None of the studies makes any allowance for interstate variation in the costs of public services. With the exception of Horowitz (1968), the research does not allow explicitly for simultaneous determination of expenditures and aid. With the exception of O'Brien (1971) and, to some extent, Pogue and Sgontz (1968), the empirical testing of models is limited to ordinary least-squares estimation based on single-year cross-sectional data. Most important, the cross-sectional results fail to conform to the predictions derived from theoretical, constrained-maximization models of state and local spending, and no rival theoretical framework consistent with findings of stimulation has been offered. The nature of the disparities between the theory and the cross-sectional estimates can be demonstrated by comparing the results shown in Table 6.1 with the implications of the theoretical models.

According to the constrained-maximization theory of local spending, as developed by Gramlich, Inman, Gramlich and Galper, and the school finance researchers cited above, different forms of grants to state and local governments would elicit the following responses.

First, unrestricted (noncategorical) lump-sum grants would be partly substituted for state and local funds. The estimated coefficient for such grants in an expenditure equation would be between 0 and 1.0.

Second, the coefficient for categorical lump-sum grants would be greater than the coefficient for unrestricted lump-sum grants but still in the range from 0 to 1.0. Where the grant is for an activity that the recipient would have undertaken with its own funds, even in the absence of aid, the coefficient would be similar to that of unrestricted aid. Where the grant is for a project or activity that would not otherwise have been undertaken *and* where the constraints on the use of grant funds are effectively enforced, the coefficient would be closer to but not greater than 1.0.

Third, where grants are of the open-ended matching type, the theory allows for either a substitutive or stimulative effect on state and local spending. In such cases, it is inappropriate to investigate the impact of aid by the method used in the cross-sectional state-local expenditure studies—namely, by treating the dollar amount of aid as an independent variable in the expenditure equation. The reason is that the amount of matching aid is not exogenous but determined by the behavior of the grantees. Several authors have shown that the correct procedure is to use the *matching rate* or, more precisely, the *local share* of each incremental dollar of spending, as the independent variable.[10] None of the studies represented in Table

[10] See, e.g., Wilde (1969), Inman (1971), and Barro (1972a).

6.1, except for the two time-series analyses, deals with matching grants in this manner.

Fourth, the possibilities concerning closed-ended matching grants are more complicated. Different aid coefficients should be expected, depending on (1) whether the closed-ended grant is fully utilized—i.e., whether the grantee takes the maximum amount of aid to which it is entitled and spends the corresponding amount of its own matching funds; and (2) whether the amount required to match the federal aid is greater or less than the amount the grantee would otherwise have expended for the aided function. Three cases need to be distinguished. (1) If the grant is fully utilized and the required amount of matching money is less than the amount that would have been spent for the aided activity in the absence of aid, the closed-ended matching grant would have precisely the same effect as a lump-sum grant. The expected aid coefficient would be in the range of 0 to 1 and its value would depend on whether the grant is categorical. (2) If the grant is fully utilized but the grantee has been forced to use more of its own revenue to match the federal aid than it would otherwise have expended for the aided activity, the aid coefficient may be greater than one. The *maximum* value of the coefficient would be 1 + m, where m is the number of dollars that the grantee must expend to match each $1 of aid. However, the maximum response should occur only where the grantee would have expended *none* of its own funds for the activity in question, had there been no federal assistance. Where some state or local money would have been available even in the absence of aid, the coefficient should be smaller. (3) If the closed-ended matching grant is not fully utilized by the grantee, its effect would be the same as that of an open-ended matching grant. The reason is that any increment in state-local outlay for the aided activity would generate an increment in federal aid, just as in the open-ended situation. Therefore, aid coefficients greater or less than 1.0 would be theoretically acceptable.

The aid effects shown in Table 6.1 represent the combined effects on state and local spending of all grants available during the periods covered by the data. During those years (primarily the early and mid-1960s), there was very little general-purpose federal aid. GRS and broad block-grant legislation had not yet been enacted. Federal aid consisted partly of lump-sum categorical grants (e.g., in education), partly of closed-ended categorical matching grants (notably for construction of highways and other public facilities), and, in the welfare area, of partially open-ended matching grants to the states.[11] In FY 1965, for example, federal grants totaled just under $11 billion, of which $4 billion was for highway programs (closed-ended matching) and approximately $3 billion was for public assistance (open-ended with respect to the number of beneficiaries).[12] It has been demonstrated that most closed-ended grants were fully utilized by the grantees (Osman, 1968; Enns, 1974; Gramlich, 1976). Also, states and localities spent considerably more of their own funds in most functional areas than were required to match federal funds. This constitutes circumstantial evidence that relatively little federal aid was for activi-

[11] Although federal grants for AFDC are now open-ended with respect to both the number of recipients and the payment per recipient for all states that participate in Medicaid, the program was formerly closed-ended with respect to the benefit payment. Above a certain level, the costs of higher benefits had to be borne 100 percent by the states (or passed on to the localities.

[12] *Budget of the United States Government, FY 1967, Special Analyses*, Special Analysis J, "Federal Aid to State and Local Governments."

ties that would not otherwise have been supported and, moreover, it means that there were opportunities for grantees to substitute federal aid for their own funds, thereby converting some portion of the categorical assistance into the equivalent of general aid.[13]

Given the above characterization of federal aid, there appear to be two major discrepancies between the theory and the cross-sectional studies. First, according to the theoretical propositions, the aid coefficients for categorical lump-sum grants and fully utilized, closed-ended matching grants (except those for activities that would not otherwise have been undertaken) should be in the range of 0 to 1. Therefore, to the extent that federal aid consisted of such grants, the results shown in Table 6.1 are theoretically unacceptable. In addition, to the extent that federal aid consisted of open-ended matching grants, as in the welfare area, findings of fiscal stimulation are acceptable but the methodology of the cross-sectional studies is not. The effects of federal aid for welfare programs should have been taken into account by incorporating the applicable matching *rates* into the models, rather than the dollar amounts of aid. For both reasons, the findings of fiscal stimulation should not be taken as valid estimates of the state-local response to federal aid and should not be used for policy analysis or for predictive purposes.

Data for the last few years make it possible to conduct empirical studies of state-local spending in which separate aid coefficients are estimated for GRS, block grants, and categorical grant programs. It is also possible, given sufficient resources, to use the methods developed by Inman (1971) to separate the matching and lump-sum components of aid to individual states. A recent study by the Advisory Commission of Intergovernmental Relations (ACIR, 1977) helps to lay the groundwork for such an effort by classifying federal programs into lump-sum and matching categories. For now, however, the published estimates of the impact of federal grants on the state-local sector must be viewed with extreme skepticism. Of the available estimates, those from the time-series studies probably deserve to be given the most weight, even though they are based on aggregate national data.

Studies of Local General-Purpose Governments. Another set of empirical findings about fiscal substitution and stimulation comes from studies that use cities, counties, or metropolitan aggregates of local governments as the units of analysis. Table 6.2 summarizes the research findings about responses to grants of these jurisdictions. The format of the table is the same as that of Table 6.1, except that distinctions are made between estimates of the impact of federal aid and those of state and federal aid combined.

The results of the city and county studies are parallel to those of the more aggregative studies of the state-local sector. Most of the cross-sectional studies yield aid coefficients greater than 1.0, signifying a stimulative effect of external aid on local spending. The comments made in connection with the state-local spending

[13] It becomes very difficult in practice to determine whether grants are for activities that the grantee would have undertaken on its own, and one may come to the wrong conclusion by taking too aggregative a view of the question. For instance, suppose that a locality that had been planning to spend $5 million for highway construction recieves $2 million in aid for that purpose. It may appear that the grantee is perfectly free to substitute some or all of the $2 million for its own funds and to use the freed resources for nonhighway purposes. However, at the micro level, the funds may have been designated for particular projects on which the locality would have expended much less than $2 million on its own. If so, the full $2 million could not be diverted to nonhighway purposes without violating the terms of the grant. The opportunity for substitution without violating is less than it may appear to be from a macro perspective.

Table 6.2

Estimates of the Effects of Federal and State Aid on Local Government Spending

Study (Author)	Publication Date	Unit of Analysis, Sample, and Time Period	Aid Variable	Estimated Expenditure Increase per Dollar of Federal Aid ($)	
				Federal Aid	Federal and State Aid Combined
Brazer	1959	462 cities, 1951	Federal and state aid	--	1.74
Adams	1966	1249 less developed counties	Federal aid	.96	--
Henderson	1968	100 metropolitan counties, 1957	Federal and state aid	--	1.42
		2980 nonmetropolitan counties, 1957	Federal and state aid	--	1.04
Pidot	1969	81 metropolitan areas, 1962	Federal aid	2.35	--
Johnson and Junk	1970	43 largest cities, 1967	Federal and state aid	--	2.02
Inman	1971	41 cities, 1967	Unrestricted lump-sum aid	--	1.00
Gramlich and Galper	1973	10 city-counties, 1962-70, pooled data	General aid	--	.43
			Categorical matching aid	--	.90

studies about treatment of different forms of aid and specification of models apply equally to these studies. The high aid coefficients yielded by the cross-sectional analyses should be viewed with suspicion and not used to predict city or county responses to increments in aid.

The Inman study is in a special category because, unlike the earlier studies, it treats lump-sum and matching grants appropriately. The estimated aid coefficient, approximately 1.0, signifies a neutral fiscal impact—neither substitutive nor stimulative—of lump-sum, unrestricted aid. Unfortunately, this result was obtained from a set of single-year, cross-sectional equations fitted to data from a small sample of cities. The result itself is not conclusive, even though Inman's methodology points in the direction that must be taken to obtain better estimates of the effects of different forms of grants in the future.

The last entry in Table 6.2 is taken from the Gramlich and Galper study referred to earlier. In addition to working with national time-series data, these authors applied their model to pooled time-series, cross-section data on ten large

city-counties. The resulting estimates of the impact of general aid (unrestricted lump-sum grants) and categorical matching grants are much smaller than the other estimates reported in the table and more in line with what one would expect from expenditure determinants theory. It remains a task for the future to apply the type of model used by Gramlich and Galper, which distinguishes among different forms of grants, to the larger data bases used by other researchers. Until that is done, there is no way to determine whether the estimates diverge because of different data sets or because of different models and methodologies.

The fraction of variance explained by models of local spending is generally much lower than the fraction explained by models of combined state and local spending. The likely reason is that cities and counties vary greatly in functional and fiscal responsibilities. The difficulty of selecting a reasonably homogeneous sample of local units has been a deterrent to research and one of the reasons why fewer findings are available about the behavior of cities and counties than about local school districts or the state-local sector as a whole. As mentioned earlier, attempts have been made to deal with the problem of unequal responsibilities, or to limit its effects, by restricting the analysis of local spending to the "common functions" that all governments in a class ordinarily perform. This has been of only limited help for two reasons: (1) the limitation to common functions excludes education and welfare, which account for 50 percent of local spending, and (2) there is no way to exclude the interactive effects among functions—e.g., local spending for police and fire protection might be lower in one city than in another because the former has education and welfare responsibilities, while the latter does not. Two alternative analytical approaches are to develop an explicit measure of the scope of fiscal responsibility of each jurisdiction, possibly along the lines suggested in Section III, and to create comparable units of analysis by vertical aggregation of data for overlapping local jurisdiction, e.g., by examining expenditure aggregates consisting of total municipal spending plus the portion of the spending of the overlapping county and school district attributable to municipal residents. Each approach raises difficult methodological issues and would require a considerable research effort to carry out.

Studies of School District Spending. Table 6.3 summarizes the results of empirical studies of spending by local school districts. These studies are methodologically similar to the others discussed above, but certain attributes of school districts and systems of state education aid make their results more clear-cut and easy to interpret: First, school districts are single-function local governments; all their expenditures and intergovernmental aid receipts are for public education. Second, the issue of division of service responsibilities among jurisdictions does not arise because school districts do not share the responsibility for providing schooling with overlapping tiers of government. Third, most intergovernmental aid to school districts has taken the form of unrestricted grants from the states, which is the simplest form of aid to represent in an econometric model. For all three reasons, it is relatively easy to handle the aid variables correctly in school district expenditure studies.

The estimated aid effects for school districts are strikingly different from the other estimates discussed above. In all cases, the aid coefficient is between 0 and 1.0, as theory would predict for an unrestricted lump-sum grant. By most estimates, a major fraction (50 percent or more) of state and federal aid to the local districts is substituted for local revenue and presumably converted into local tax relief.

Table 6.3

Estimates of the Effects of Federal and State Aid on School District Spending

Study (Author)	Publication Date	Unit of Analysis, Sample, and Time Period	Aid Variable	Estimated Expenditure Increase per Dollar of Federal Aid ($)	
				State Aid	Federal and State Aid Combined
Brazer	1959	40 cities, 1951	State aid	.29	--
Renshaw	1960	48 states, 1950	State aid	.16	--
Sacks and Harris	1964	48 states, 1960	State aid	.52	--
Struyck	1970	140 New Jersey school districts, 1966	State aid	.65	--
Weicher	1972	106 cities, 1962	State aid	.40	--
Barro	1972b	48 states, 1951-67, pooled data	State and federal aid	--	.31
Stern	1973	157 Massachusetts school districts, 1969	State and federal lump-sum aid	--	.50[a]
Grubb and Michaelson	1974	159 Massachusetts school districts, 1969	Lump-sum aid	--	.26
			Matching aid	--	.39[a]

[a]Approximate value at the sample mean from a nonlinear equation.

The school spending results are important both because outlays for education constitute a large fraction of all outlays of local government and because of the light these estimates cast on the results for other types of jurisdictions and functions. Unlike other units of state and local government, school districts receive most of their intergovernmental revenue as unrestricted grants. The contrast between the low aid coefficients in the school finance studies and the high coefficients in the studies of other state and local government suggests that it is the categorical nature of federal aid that accounts, at least in part, for the findings of fiscal stimulation reported by the latter.

Noneconometric Studies. Finally, there have been some noneconometric studies of the fiscal substitution issue. Notable among these are the recent studies by Nathan, Manvel, and Calkins (1975), Nathan and Adams (1977), and Juster (1976) of the federal GRS program. To investigate responses to GRS, Nathan and his associates depended on field observers in various state and local jurisdictions, who were given instructions to determine how budgetary decisions were affected

by the inflow of the new federal aid funds. The observers' findings were based on monitoring of the budgetary process and direct interviews with state and local officials. The researchers then aggregated these field reports into estimates of fiscal impact.

The results obtained by this method are generally comparable with the econometric estimates of the impact of general aid obtained by Gramlich and Galper (1973). Nathan and Adams (1977) found that a substantial fraction of GRS money is substituted for the grantees' own revenue. They estimated that of the GRS grants to local governments, approximately 66 percent translated into higher outlays than would otherwise have been forthcoming (including both new spending and maintenance of spending that would otherwise have been cut), while the remainder was used to reduce taxes or borrowing or to increase accumulated surpluses. Of the GRS grants to states, a smaller share, 52 percent, went for higher outlays and a correspondingly larger share was substituted for state revenue.

Juster (1976) used a more traditional survey method. His estimates of the fiscal impact of GRS are based on replies of state and local officials to questions about how their budgets would have been different in the absence of GRS. The replies indicate that about 24 percent of GRS funds, on average, were used to reduce taxes and borrowing. However, Juster notes that responses by the same officials to other survey questions suggest that this may be an underestimate of the rate of fiscal substitution.

Both the Nathan and Juster methodologies are subject to the criticisms that they are subjective and that consistency in evaluating the behavior of different jurisdictions is hard to achieve. However, this can be countered by the practical argument that more rigorous statistical methods cannot be used at a similarly early stage in the history of a program because the necessary data would not be available. The noneconometric findings at least provide lower-bound estimates of the degree to which GRS funds substitute for state and local revenue.

The Effects of Grants on the Composition of Local Expenditure

Many of the studies of local and state-local spending listed in Tables 6.1 and 6.2 examine the determinants of spending for individual government functions as well as the determinants of total outlays. Typically, the studies of aggregate state-local spending present separate expenditure equations for education, welfare, highways, health and hospitals, and other services. The studies of local spending focus on the municipal common functions—police, fire, sanitation, and highways. The availability of expenditure equations for individual functions makes it possible to analyze certain effects of intergovernmental aid on the composition of public outlays.

The formulations of some of the earlier studies preclude analysis of the effects of aid on expenditure composition. For instance, Sacks and Harris (1964), Pogue and Sgontz (1968), and others assume that per capita state-local expenditure for each function depends on the per capita amount of federal aid received *for that function*, and not on other components of intergovernmental revenue. However, other authors recognized, even in the early stage of the determinants research, that grants could affect the level of spending for functions other than the ones for which they were earmarked. For instance, Brazer (1959) reported that external aid increases municipal spending for all functions, aided or not; Kee (1965) reported a similar finding. The first author to allow for these effects explicitly in specifying his

model appears to be Osman (1966), who regressed spending for each function on aid for that function and aid for all other functions. Osman found that expenditures for education were affected by both educational and noneducation aid, but did not find other instances of significant interfunctional effects.

More recent studies have pursued the question of how each component of aid affects the various components of public spending. Smith (1968) found that spending for "nonaided" state and local functions was stimulated by federal grants. He interpreted this as evidence that federal grants do not draw state and local funds from nonaided to aided functions, as had been charged by proponents of the fiscal "distortion" hypothesis. Weicher (1970) used total intergovernmental revenue as an independent variable in a study of municipal spending for the common functions. Like Brazer, he found that spending for all functions, including those not explicitly aided by grants, responds to external aid. In a later study, Wiecher (1972) simultaneously analyzed the determinants of expenditures for common functions by municipalities and the determinants of educational expenditures by school districts serving the same areas. He found that aid to either level of government translates, in part, into increased spending by the other level—i.e., municipal outlays are positively influenced by grants to the school districts, and vice versa. Moreover, Weicher concluded that the fiscal impact of aid on the spending of cities and school districts would be the same no matter which level of government received the grants initially.[14] O'Brien (1971) obtained more sophisticated econometric estimates of the interfunctional spillovers. Using pooled time-series, cross-section data and multistage estimation techniques, he tested a model in which spending for each function is assumed to depend on aid for that function and aid for all other functions. He found a complex pattern of interfunctional effects, in which, for instance, spending for education and health is positively related to aid for other functions, whereas welfare spending tends to decline as aid for other functions increases. O'Brien also found that state and local spending for unaided functions tends to *decrease* when intergovernmental aid increases. Thus, contrary to Smith (1968), he provided evidence to support the fiscal distortion thesis.

All these findings are suspect for the reasons cited previously. The authors have not taken adequate account in their models of the forms in which aid is provided. The model specification problems are especially serious in connection with the welfare function, for which the federal government provides open-ended matching grants, and the highway function, for which aid takes the form of closed-ended matching grants. The results that are least believable are those that show a stimulative effect of aid on both the aided function and on other functions. The arguments that have been used to rationalize aid coefficients greater than 1.0—e.g., that grantees spend their grant funds plus the matching funds on projects that would otherwise not have been undertaken—cannot reasonably be extended to the unaided expenditure categories.

Econometric research has not yet been published on the effects of general-purpose federal aid on the composition of state and local spending. The first substantial general aid program, GRS, was enacted in 1972, and the data needed for

[14] Strictly speaking, Weicher found that there was a difference between the education aid coefficient and the "other" aid coefficient in his education spending equation, but that the difference was not statistically significant. He obtained similar results for the two aid coefficients in his equations for spending on municipal common functions.

econometric research are now for the first time available. The growing importance of revenue sharing and block grant programs (including general aid programs operated by individual states) underscores the need for more work on the allocative impacts of those categories of grants.

Interjurisdictional Differences in Fiscal Behavior

Few studies have addressed the issue of whether there are systematic differences in responses to grants among different types of jurisdictions or among jurisdictions in different fiscal circumstances. In most cases, the equations presented in the expenditure determinants studies contain only a single set of aid coefficients, representing the fiscal responses of the average jurisdiction in the sample. These cannot be used to predict the behavior of individual states or localities, or even categories of jurisdictions. For instance, the state-local models provide no information that would permit a user to differentiate the responses to federal aid of New York or Massachusetts from those of Alabama or Mississippi.

For technical reasons, it is difficult to allow for differential aid effects in expenditure determinants models. To test for interjurisdictional differences in responses to grants, it would be necessary to estimate models in which the aid coefficients themselves are treated as functions of state and local characteristics. This would introduce interaction (product) terms into the regression equations. Where the proper specification of the basic model is in doubt and where the reliability of the aid coefficients is marginal, as is often the case in these studies, it is unlikely that reliable estimates could be obtained of the coefficients of interaction terms.

A few studies have examined geographical differences in fiscal behavior, including differences in aid impacts. Scanlon and Strauss (1972) present evidence, obtained by estimating a simple expenditure model with county-level data, that there is considerable interregional and intraregional heterogeneity in expenditure functions. In particular, substantial differences in behavior are found between urban and rural counties within each region. Several school finance studies have also reported interregional differences. Shapiro (1963), James, Kelly, and Garms (1965), and Barro (1972b) found significant differences in expenditure functions between southern states and the remainder of the country. Barro, using a model that allows the aid impact to be different in each region, found a much lower rate of substitution of grant funds for local revenue in the southern states than elsewhere.

An important question that has received almost no attention is whether jurisdictions in more favorable and less favorable fiscal positions respond differently to grant funds. The answer would be of considerable relevance in evaluating proposals for federal aid to fiscally hard-pressed cities. One study that tested for such an effect is Grubb and Michaelson (1974), which found that a school district's propensity to spend increments in aid increases with the local tax rate. No comparable interaction effects have been reported in studies of general local government finances. It might be possible, using indices of fiscal condition of the types proposed in Section III, to test for such differences in the context of a local or state-local expenditure determinants study.

Overall Findings and Policy Implications

Certain *qualitative* findings about the fiscal impacts of grants are fairly well

established. Four basic propositions have been summarized by Gramlich (1976) as follows:

1. Open-ended matching grants (as for welfare) generally increase spending by somewhat less than the amount of the grant, indicating that the price elasticity of demand for the aided services is probably somewhat less than unity.
2. Unrestricted general aid (as in revenue sharing) results in some tax reduction and some expenditure increase, with the expenditure increase less than that for open-ended matching grants, in accordance with theory.
3. Categorical, closed-ended grants generate increments in spending that are roughly equal to the grant (in some cases larger). They are more stimulative than unrestricted grants, because they are provided for functions for which service demands are more elastic, because they are large relative to existing expenditures for those functions, or because the grantees are effectively constrained to spend the aid money for the designated purpose.
4. All types of grants stimulate more spending than do federal (or state) tax cuts (or other community income increments) of equal magnitude.

It is difficult to be precise about the magnitudes of the aid effects for particular functions or particular categories of governments. Diverse estimates have been published for each state and local service and each type of jurisdiction. The reasons for some of the variations and some of the anomalous results of the early studies appear to be understood at the theoretical level, but large-scale empirical efforts would be needed to verify these theoretical insights and to produce a more reliable set of estimates.

Turning specifically to the question of the impact of federal grants-in-aid on finances of the cities, the current state of the art can perhaps be capsulized most dramatically by itemizing what *cannot* be done with the existing expenditure determinants models:

First, it is not possible to say more about the fiscal impacts of direct federal grants to local governments than what is contained in the foregoing qualitative propositions. There is no firm basis for estimating the degree to which a given type of grant, earmarked for a particular purpose, will increase spending for the aided function or for other functions. Also, it is not possible to say whether the degree of fiscal substitution is likely to be greater for one type of government (e.g., a fiscally hard-pressed central city) than another (e.g., an affluent suburban county).

Second, even less can be said about the effects of grants that go initially to states and that then generate flows of combined state and federal aid to localities (e.g., grants for AFDC). The prediction problem is worse for such grants because two sets of responses—those of the state and those of the locality—need to be estimated. As was explained in Section IV, little is known about the degree to which the flow of state aid to localities is increased or reduced by federal aid. Moreover, the lack of information on fiscal responses of *particular* states is a serious problem because there are reasons to believe that states will have diverse reactions to certain kinds of federal grants.[15]

[15] The most striking evidence of differences in state "tastes" for public services (i.e., differences in spending and responses to grants that remain after effects of income, demography, and other "objective" factors have been accounted for) exists in the welfare field. Some Southern states apparently had such

In sum, we are a long way from being able to trace the fiscal effects of federal grants through the federal-state-local fiscal system. Development of such capabilities will require greater resources than have hitherto been devoted to expenditure determinants studies.

THE EFFECTS OF INCOME, TAX BASE, AND DEMOGRAPHIC VARIABLES

As explained in Section V, many federal policies affect urban fiscal conditions by inducing changes in the per capita urban tax base or in the composition of the service-consuming population. The expenditure determinants models provide some information on how state and local spending is likely to respond to these changes. This information has been obtained mainly as a by-product of efforts to study the fiscal impact of intergovernmental aid. In attempting to estimate the effects of grants, researchers have sought to control for the effects of "taste variables," "conditions of service provision," and other nonfiscal influences on spending. To this end, they have included economic, demographic, and physical characteristics of localities in their models. Because few researchers considered analysis of the nonfiscal variables to be their primary objective, they selected particular variables for inclusion in their models on the basis of such criteria as convenience, data availability, and contribution to "goodness of fit" of the expenditure equations. The expenditure equations might have been specified quite differently if estimation of the expenditure effects of economic and demographic characteristics had been the primary analytical objective.

Income, Tax Base, and Related Economic Variables

One consistent finding from the expenditure determinants studies is that the level of per capita spending in a jurisdiction is an increasing function of per capita personal income. All the state-local spending studies listed in Table 6.1 and the city and county studies listed in Table 6.2 included per capita income as a variable. In virtually every case, a significant positive effect of income on spending was reported. In some instances, per capita income has been supplemented by other income-related variables. For instance, Fisher (1964) and Pogue and Sgontz (1968) included the percentage of families with incomes below $2000 as a variable in their spending equations. This variable was found to have a negative association with per capita spending. Horowitz (1968) and O'Brien (1971) incorporated income distribution variables (Gini coefficients) into their models. O'Brien found that a higher value of the Gini index is associated with a lower level of per capita spending. The notion of broadening the income variable to include other flows of taxable resources (e.g., some measure of business income in each state or locality) and measures of wealth have been suggested, but such variables have not appeared in expenditure determinants models, presumably because of problems of data availability.

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strong distaste for welfare programs in the past that they did not even exhaust the federal matching grants to which they are entitled whereas most northern states not only took all available federal aid, but supplemented welfare programs on a massive scale from their own resources. Evidence on South versus non-South differences in preferences has also been provided by several education studies, including Shapiro (1963), James, Kelly, and Garms (1965), and Barro (1972b).

There have been few attempts to relate spending by states and general-purpose local governments to levels of the tax bases that those jurisdictions actually draw upon for revenue, such as the assessed value of property per capita, retail sales per capita, or taxable (as opposed to total) income per capita. In this respect, there is a major difference between the work on general-purpose governments and the work on local school districts. The latter places heavy emphasis on the importance of the local property tax base. One researcher, Weicher (1970, 1972), included "per capita retail sales" in his model and found a positive effect of that variable on spending for the standard municipal functions. However, the most important tax base variable, assessed property value, was not taken into account in his or other models.

There are two reasons for the absence of explicit tax base variables from the state and local spending models. One is that it is extremely difficult to define tax base variables in a consistent manner when the sample of jurisdictions cuts across state lines. There are major interstate variations in the way that taxable income, sales, and property are defined. Interstate (and even interlocal) variations in assessment practices make it especially difficult to develop consistent data on per capita property values in different cities. The data consistency problems are less severe when the analysis is limited to a single state. However, there are few single-state studies of general-purpose government spending. The situation is entirely different in studies of public school spending, where single-state analyses are common.

The second problem in treating tax base variables is that income, property value, retail sales, and other tax bases tend to be highly correlated with one another. Consequently, it is unlikely that reliable estimates of their separate effects could be obtained even if suitable data were available. This is a practical argument, although not a conclusive one, in favor of using a single, comprehensive fiscal capacity variable in expenditure equations. At this point, it remains an unresolved issue of modeling strategy whether more can be learned about the effects of tax base changes by incorporating multiple tax base variables into the models or by replacing per capita income with a more inclusive single measure of the taxable resources of a community.

In contrast to studies of spending by general-purpose governments, most studies of school district spending emphasize the relationship between a district's spending per pupil and the value of the per pupil property tax base. The difference in approach reflects both the motivation of the school finance researchers and the nature of the school finance system. The salient policy issues in school spending studies have to do with the *intrastate* distribution of educational funds, the responses of local districts to changes in state aid, and the design of state school finance formulas. Reflecting these concerns, most of the district-level econometric models have been based on single-state samples of school districts. Also, under most state school finance systems, both existing and proposed, the amount of state funding per pupil is linked to the amount of locally taxable property per pupil in each district. Thus, it is both feasible and important for policy purposes to focus on the connection between property values and spending.

Virtually all the school finance studies show a strong positive relationship between the property tax base and per pupil spending. The property value variable alone often accounts for 60 to 70 percent of the observed interdistrict variation in expenditure levels (Alexander, 1974). Moreover, where both property value and per

capita income appear in the expenditure equation, the influence of the former is usually considerably stronger.

There is little doubt that any federal policy that succeeded in influencing the per capita or per pupil level of property value in a community would have an effect on the level of educational spending. However, this connection may become less certain in the future. A major thrust of recent state school finance reforms has been to weaken the connection between the property wealth of a community and the level of support for its public schools. Reform plans of the "power equalizing" type, which have recently been adopted by a number of states, are specifically designed to compensate for the expenditure effects of interdistrict tax base differentials.[18] Although it has been shown that full equalization for differences in wealth is not likely to be achieved under these schemes (Feldstein, 1975), it is clear that the importance of property value as a determinant of school spending will be less important after reform than it has been in the past.

An important finding of both the general state-local studies and the school finance work is that the response of local spending to an increment in income or tax base is much smaller than the response to an equal increment in intergovernmental aid. Typically, the income coefficient in an expenditure equation is from one-tenth to one-fifth the size of the aid coefficient (Barro, 1974a). This means that direct aid to a local government in the form of grants has a much greater effect on the level of local public spending than does more general financial aid to the local community, such as would be provided by federal tax reduction or a program of federal tax credits (Gramlich, 1969; Gramlich and Galper, 1973). Therefore, if the federal goal were to augment the level of services provided at the local level, direct aid to local jurisdictions would probably be a more effective instrument than indirect assistance to the local economy. On the other hand, if the federal objective were to relieve the tax burdens of local residents, direct assistance to the residents (e.g., in the form of federal tax credits) would be a more effective instrument than would intergovernmental aid to the local authorities.

The finding that income and aid effects are different has raised some important questions about the theoretical foundations of the expenditure determinants models (Gramlich, 1976; Barro, 1974a). It is difficult to reconcile such a finding with the proposition that underlies most constrained-maximizing models of local fiscal behavior; namely, that local governments seek to establish an optimal allocation of the community's total resources between local public services and private consumption. This proposition implies, contrary to what has been found in the empirical studies, that local officials will respond to grant funds just as they respond to increments in the total income of residents of their communities. Although some alternative propositions have been suggested, a complete alternative theory has not yet been developed. Thus, there is additional cause to doubt that the econometric models of local spending have been specified properly and that the results have been interpreted correctly.

Demographic Variables

As was explained in Section V, changes in population size and composition may

[18] A power equalizing grant is a type of matching grant in which the matching rate is a declining function of the local tax base, such that a given rate of tax effort will produce the same revenue per pupil in low-tax base and high-tax base districts.

affect both the per capita tax base of a jurisdiction and the level and composition of the demand for local services. Most expenditure determinants models do not treat the revenue and expenditure influences on local spending separately, and therefore are not capable of distinguishing between the two effects. Consequently, the estimates from determinants studies of the effects of demographic factors must be interpreted as representing the *net* effects of population-related changes on both the supply and demand for public services. There are a few exceptional cases, to be noted below, in which attempts have been made to distinguish between supply and demand influences on local fiscal behavior.

The Pupil-Population Ratio. The demographic factor whose role is most firmly established in the theoretical and empirical literature is the ratio of public school pupils to the total population of a locality. Theoretical analysis accords the pupil-population ratio two roles (Barro, 1974a): First, an increase in the ratio is likely to generate an increase in the demand for educational outlays because a higher ratio means that a large proportion of the households in a community are likely to have children in school. Second, the ratio plays the role of a price variable. As the number of pupils per capita, or per taxpayer, increases, the cost to each taxpayer of financing a given increment in per pupil spending becomes greater. Therefore, assuming the usual negative response to higher relative prices, the level of educational spending *per pupil* would decline as the pupil-population ratio rises but the level of educational spending per capita may rise. Both propositions are supported by empirical findings. Positive effects of the pupil-population ratio on per capita outlays for education have been reported in a number of the general state-local finance studies (e.g., Pogue and Sgontz, 1968; Smith, 1968; Gramlich and Galper, 1973). Negative effects of the ratio on per pupil spending are reported in all the school finance studies listed in Table 6.3.

It has also been shown (Barro, 1972b) that the *rate of increase* in pupil enrollment in a school district is negatively related to the level of per pupil spending, independent of the effect of the pupil-population ratio. This effect may be explained either by an adjustment lag on the part of the local school district or by diversions from current outlays to meet the increased demand for school construction funds that exists during a period of rising enrollment. An important issue facing cities whose populations and school enrollments are declining is whether the enrollment growth effect is reversible: Will declining enrollment, other things being equal, tend to raise the level of per pupil spending? Econometric findings on this point are not yet available, but other school finance research suggests that such a response is likely (Odden and Vincent, 1976). Therefore, school systems experiencing enrollment decline are not likely to enjoy fiscal relief in proportion to the reduction in the school population.

The Incidence of Poverty. It has been extremely difficult to determine whether the proportion of poor people in the local population is positively associated with the demand for local services, as would be expected from the observation that low-income households tend to consume more services than other households in their communities. One problem is that the presumed positive relationship between poverty and "needs" for services is difficult to disentangle from the negative relationship between poverty and fiscal capacity. Because areas with large numbers of poor people tend to have low per capita incomes and tax bases, the coefficient obtained for "percent poor" in an expenditure equation is usually negative (see,

e.g., Pogue and Sgontz, 1968). However, the value of the poverty coefficient is highly sensitive to the inclusion of other fiscal capacity variables in the equation. Auten (1974), who specifically set out to develop an index of service needs and took considerable pains to separate capacity and need variables, was able to show a positive influence of the poverty variable on the welfare category of local spending. A similar attempt in a study of "needs" for federal GRS funds (Barro et al., 1975) did not succeed in relating poverty incidence to welfare outlay, but did relate it to spending for functions other than education and welfare. A second problem is that there seems to be a negative correlation at the state level between the incidence of poverty and "tastes" for income maintenance payments and other welfare-related services. The southern states, which have the largest concentrations of poor people, tend to spend far less for redistributive programs than other states, even taking into account their relatively low fiscal capacities. This interregional difference in preferences is reflected in negative poverty coefficients in expenditure equations fitted to state-level, cross-sectional data. The combined effect of low fiscal capacity and distaste for welfare and other redistributive programs overwhelms any need-related effect that poverty incidence might have on state-local expenditure behavior.

The most promising method of disentangling the various effects of poverty incidence and related variables is to perform time-series analyses of spending by individual jurisdictions (or relatively homogeneous categories of jurisdictions, such as large cities in the Northeast. If this were done properly, it might permit separate estimation of the local fiscal responses to changes in incomes and tax bases, on the one hand, and changes in relative numbers of poor people, on the other.

Other Measures of Dependency. There have been scattered empirical findings about the effects of measures of dependency other than poverty on the level of per capita state and local spending. Pogue and Sgontz (1968) and Smith (1968) found a positive relationship between the welfare category of spending and the percentage of the population over 65 years of age. O'Brien found relationships between several categories of spending and a "dependency ratio," defined as the ratio of total population to population in the working age brackets—ages 18 to 65. Barro et al. (1975) found a positive relationship between welfare spending and the percentage of female-headed households in a state. Auten (1974) showed a connection between spending for health services and the proportion of children eligible for AFDC payments.

Although these results "make sense," it is difficult to interpret or compare them. In the absence of theoretical arguments for including particular demographic variables in determinants models, the choice has generaly been made on the basis of data availability and convenience. Also, the results obtained for any one variable depend strongly on the other demographic variables included in the model (because of multicollinearity among the variables) and other specifications of the expenditure equations. Thus, there is little firm basis for predicting the local fiscal response to a federally induced change in any particular dependency variable.

Population Density and Urbanization. Among the first-reported and most frequently confirmed findings of expenditure determinants studies are the effects of population density and degree of urbanization (of states) on levels of per capita state-local spending. The signs of the two effects vary from one state-local function to another. It has been found that population density is negatively associated with

per capita spending for education and highways but positively related to spending for police and fire protection and other common municipal services. Urbanization is negatively related to highway outlays but positively related to spending for most other functions, including education and welfare. Diverse interpretations have been offered of these effects. Some writers view the findings as evidence that "needs" for certain services are greater in densely populated urban areas—e.g., the per capita "workload" facing the providers of police, fire, and sanitation services is greater in the cities than in the rural areas. Others interpret density and percent urban as proxies for measures of service cost. They attribute the negative effect of density on educational spending to diseconomies of scale in providing schooling in sparsely populated areas and the positive effects of density on the municipal common functions to diseconomies of scale in providing those services in closely settled urban areas. Although there is a considerable literature on economies of scale in the provision of state and local services, the findings are too ambiguous to settle the issue of how density and urbanization are related to costs.[17] To distinguish between the cost-related and need-related effects of these variables, it would probably be necessary not only to deal with the economy of scale issue, but to construct expenditure determinants models in which demand and supply influences are estimated separately. Some progress has been made in this direction (Ohls and Wales, 1972), but the state of the art is insufficiently developed to support the detailed analyses of cost and need factors that would be needed to resolve the issue.

LOCAL RESPONSES TO PRICE CHANGES

A number of federal policies affect the local public sector by altering the effective prices that jurisdictions pay for services. The major policy instruments that have price effects include the following:

1. Matching grants, which offer the grantee a "discount" for the aided service.
2. Federal tax deductions for state and local taxes, which reduce the net burden to taxpayers of local levies.
3. Federal policies that affect actual resource prices, such as the wages paid to public employees.

In addition, policies that change the proportion of local residents eligible for a service can have price-like effects. For instance, a decline in the pupil-population ratio in a school district has an effect analogous to that of a reduction in the cost of schooling because it reduces the cost to each taxpayer of each dollar of educational outlay per pupil. The same information about the local response to a price change is needed to assess the effects of all these policies.

The fiscal impact of a price change can be expressed by either the price elasticity of local public services or the price elasticity of local expenditures. The former

[17] The economies of scale literature often looks only at service costs in relation to the population of the service delivering jurisdiction. Size, per se, is not necessarily related to density. Also, much of the literature on scale factors is concerned with expenditure rather than cost variations—i.e., the question is not resolved of whether the variation of per capita outlay with population size reflects differences in service costs or differences in demand factors that account for the higher levels of spending in large cities.

measures the percentage rate at which the real, physical services offered by a locality decline as the relative price of services increases. The latter measures the percentage rate at which local spending, measured in nominal dollars, increases or decreases as the price rises. If the local response to price change is *elastic* (i.e., the rate of decline in real services is greater than the rate of increase in the price), this will appear in an expenditure equation as a service elasticity less than 1 or an expenditure elasticity less than 0. If the response is *inelastic* (i.e., the percentage decline in services is less than the percentage increase in prices), this will be indicated by an estimated service elasticity greater than 1 and an expenditure elasticity greater than 0.

To estimate either elasticity, it is necessary to have a price variable in the expenditure equation. Any determinants model that deals properly with matching grants automatically contains such a variable. In principle, however, all price factors, including actual resource costs and tax deductibility factors, as well as matching rates, would be treated simultaneously in the expenditure equation. This has rarely if ever been done in empirical studies, even though the necessary theoretical framework has been developed (Inman, 1971; Barro, 1974a).

Most pre-1971 determinants studies neglected price variables entirely. In effect, they assumed that there were no federal or state matching grants and that resource prices were the same in all states and localities (this implies that observed differences in public employee wages and other prices among localities would have to be attributed entirely to differences in resource quality). Even the equations for welfare expenditures in these studies did not allow for price effects, although the researchers were well aware that federal welfare aid consisted of open-ended matching grants to the states. As noted earlier, the absence of appropriate price variables is one of the main sources of doubt about the validity of the state-local expenditure models.

Some of the more recent studies have attempted to deal with price effects explicitly. Gramlich and Galper (1973) explicitly included matching rates in their time-series model. They estimated price elasticities in the -0.7 to -0.9 range for nominal expenditure for several categories of municipal services. Several recent school finance studies have attempted to estimate price effects. Barro (1974a) obtained estimates of the elasticity of real per pupil spending of -0.4 to -0.6 from a model based on state-level data.[18] Ladd (1975), Grubb and Michaelson (1974), and Feldstein (1975) estimated the price elasticity to be $-.65$, $-.50$, and -1.0, respectively. All three estimates are based on school spending equations fitted to individual district data. Two recent studies of welfare spending have also yielded estimates of price elasticity. Tresch (1975) found the state fiscal responses to changes in the federal welfare matching rate to be completely inelastic. Orr (1976) estimated a price elasticity of welfare spending of -0.23, implying that the welfare benefit per recipient would be reduced slightly by a reduction in the federal matching rate.[19]

[18] These estimates are subject to some problems of interpretation because the model posited a single, composite price effect of two price-like variables, the pupil-population ratio and the relative price of educational resources. Also, Barro's data on the latter variable reflected only year to year differences in relative prices and not cross-sectional price variations among states.

[19] The results of Orr's study are suspect because he treated the ratio of welfare recipients to population as an independent explanatory variable instead of attempting to explain variations in that ratio and in the benefit level simultaneously.

There have also been attempts to estimate price effects in cross-sectional studies of state-local spending. In one such study, Ohls and Wales (1972) estimated an explicit supply-demand model of expenditure determination. They found that demands for the municipal "common functions" and education are completely price inelastic, but that the price elasticity of demand for highway services is −0.5. On the supply side, they found the cost of services, as measured by wages of public employees, to have significant effect on spending. The estimated elasticities for local services and education, respectively, were 0.6 and 0.5. Two other recent studies have employed the concept of the "tax price" that local residents pay for the services of their jurisdiction (defined as the amount of additional tax a citizen with median income must pay to finance a $1 increase in spending per capita).[20] Bergstrom and Goodman (1973) used data on municipal spending in selected states for three functions: general expenditures less education and welfare, police protection, and parks and recreation. The estimated tax price elasticities varied considerably among the states but average values of the estimates for each service were on the order of −0.2. Using a similar model, Borcherding and Deacon (1972) developed state-level equations for spending on individual functions. Their elasticity estimates vary considerably by function—e.g., −1.2 for local education, −0.9 for police, and −0.3 for fire. There are problems in interpreting both the Bergstrom and Goodman and Borcherding and Deacon models because each one treats intergovernmental aid only as a component of local income and not as a separate independent variable.

As the above descriptions indicate, there has been wide variation in both the methods used to estimate price effects and the reported numerical findings. Some researchers have concluded that real per capita spending responds only slightly to price variations, while others have found the response to be elastic. The present state of the art can best be described as "unsettled." There are serious unresolved problems of measurement, model specification, and econometric technique. No particular estimates of state or local response can be singled out as "most reliable" for purposes of prediction or policy analysis. This is an area in which considerable additional work will have to be done to produce usable results.

[20] The tax price reflects the availability of matching aid to the locality and the possibility of exporting some fraction of local taxes to nonresidents. It varies among individuals as a function of the individual's income, property value, retail purchases, etc., compared to per capita values of those tax base magnitudes for the whole community.

VII. CONCLUSIONS AND RESEARCH AGENDA

There are basically two ways that the federal government can influence fiscal opportunities and fiscal outcomes in the local public sector: One is by intervening directly to alter the revenues available to local governments, the services that they must provide, or the costs they must incur. The other is by causing changes in the local economy and population that affect the local revenue base and demands for local public services. The principal direct policy levers available to federal authorities are

1. Changes in the level, composition, or distribution of federal grants to state and local governments.
2. Changes in the revenue subsidies that are provided to local governments (and states) by provisions of the federal income tax laws.
3. Changes in policies that affect the scope of local responsibility for providing or financing public services.
4. Changes in policies that impose expenditure obligations or costs on local jurisdictions.

The list of federal policies that can operate on the local public sector indirectly via the private sector is much longer because it includes most policies that affect the geographical patterns of population and business activity. However, such policies must work through one or more of the following intervening variables:

1. Residential and personal components of the local tax base, the magnitudes of which depend on the size, composition, and economic characteristics of a jurisdiction's population.
2. Household demand for public services, which depends on the size and characteristics of the local population.
3. The business component of the local tax base, which depends on the level and composition of private economic activity.
4. Demand for public services by business, which also depends on the level and composition of private economic activity.
5. The cost of providing local public services, which is influenced by costs in the private sector.

The principal conclusions of this study with respect to each of the direct policy variables and each of the intervening variables that the federal government can influence indirectly are summarized below.

CONCLUSIONS ABOUT POLICIES THAT AFFECT LOCAL FINANCES DIRECTLY

The current state of knowledge concerning the effects of federal intergovernmental aid programs and other federal policies that affect local finances directly can be summarized as follows: At the conceptual level, there are few important gaps

in our understanding of the short-run effects of these federal policies on local government finances. This is true even though some of the complexities of the federal-state-local system have been neglected in discussions of the federal role in urban fiscal affairs. On the empirical front, knowledge is fragmentary. Some important issues have scarcely been studied empirically; others have been studied extensively, but the results are either inconsistent or methodologically suspect. Moreover, empirical issues often have not been approached in a manner that illuminates the effects of federal policy.

In some cases, all that would be needed to eliminate information gaps is additional data collection and descriptive statistical analysis. However, where the local or state response to federal policy is the central issue, as in analyzing the fiscal impacts of grants, further progress hinges on the development of more powerful and more detailed behavioral models. The analytical problems of analyzing the long-run effects of grants and other direct policies are especially severe. The missing elements are not findings about public sector behavior, but information on the responses of households and business firms to changes in public sector conditions. In sum, our ability to make quantitative estimates of the effects of federal policy changes on urban fiscal opportunities or outcomes is severely limited despite our fairly well developed theoretical understanding of the relevant chains of cause and effect.

Intergovernmental Grants

Federal aid to state and local governments exerts an important influence on both the fiscal opportunities and fiscal outcomes of the urban public sector. Neither effect is as straightforward as it may seem. An increment in federal aid may appear at first glance simply to expand a locality's fiscal opportunities by the percentage of aid in total local revenue, but this interpretation is incomplete and misleading. A thorough analysis must take account of the responses of state governments to federal aid and the expenditure obligations that localities incur when they accept federal or state financial assistance. Also, what often counts in assessing the fiscal conditions of urban areas is not their absolute fiscal well-being, but their *relative* positions compared to suburbs or less urbanized regions. To assess relative fiscal conditions, one must know not only how much money urban areas are receiving, but how aid funds are distributed among regions, states, and different types of local jurisdictions. The relationship between intergovernmental aid and local fiscal outcomes is complicated because external aid does not translate automatically into increased local spending for the aided programs or activities. Adaptive responses to aid by the grantee can and often do result in very different uses of aid money than the grantor intended. The principal findings about grants reported in this study concern these complexities of the intergovernmental aid system.

The Role of State Governments. State responses to federal grants can affect local fiscal conditions in several ways: First, much federal aid to localities is passed through state governments. By exercising the discretion permitted under federal programs, the states may affect the flows of aid money to urban and other jurisdictions and the terms that govern the grants. Second, a large component of federal aid, especially in the area of welfare, is for jointly funded federal-state programs. State policy decisions concerning these programs affect the volume of aid to the local sector, the distribution of grants among localities, and the terms under which

grants are provided. Third, federal grants for state-operated programs (i.e., aid not intended for transmission to localities) may affect the local sector indirectly because the flow of state aid to localities is likely to reflect the general fiscal condition of state governments. Fourth, the fiscal impact of federal aid that goes directly to the local level, bypassing the states, may be partly offset by state action because the states, perceiving the alleviation of local fiscal pressures by federal grants, may respond by reducing their own aid to localities.

Unfortunately, the existing body of research on state fiscal responses to federal grants provides not much more than theory for assessing the importance of these effects. The few empirical studies of state (as opposed to state-local) expenditure behavior are inconclusive, methodologically flawed, and not focused on the question at hand. There are no empirical analyses of state aid-granting behavior. Consequently, there is a major gap in our knowledge of the *net* effects of federal grants, or increments therein, on the total amount of intergovernmental aid available to the local sector.

Significance of the Form of Aid. The effects of intergovernmental aid on the fiscal opportunities and fiscal choices of urban governments depend on the form in which the aid is provided—categorical grants, block grants, or unrestricted aid; lump-sum or matching grants; one-time or recurring grants. The differential effects of these varied grant forms arise out of the expenditure obligations that they create: Except for GRS, most federal grants are earmarked for particular programs or categories of expenditure. To the extent that the earmarking is effective, grantees spend more for the designated functions than they would have spent otherwise. This means that the contribution of grants to local revenue is partly offset by local expenditures that otherwise would not have been made. Also, some grants come with matching requirements. Where these generate more spending for a program than would have existed without them, this reduces the discretionary revenue that the locality derives from the external assistance. Moreover, federal aid may create local expenditure obligations that go beyond those required by the grant programs themselves. For instance, grants for construction of facilities may generate continuing demands for local funding of operating expenses, and grants for "demonstration" programs or start-up costs of programs may generate demands for continued local support. Because the *form* of the grant is important, federal policy decisions about grant program design can affect local fiscal conditions substantially, even with the total amount of grant money held constant.

Although there is a large body of theoretical and empirical research on the effects of different forms of intergovernmental aid, there are still important uncertainties about grant impacts and obstacles to estimation of the effects of changes in grant policy. Results that are well established in the literature (according to Gramlich, 1976) include the tendencies for

1. A major fraction of unrestricted, lump-sum aid to be substituted for the grantee's own revenue.
2. Matching grants to generate more expenditure for the aided function than lump-sum grants, sometimes to the extent that grantees are stimulated to spend more of their own funds than they would have otherwise for the aided programs.
3. Categorical restrictions to increase the effect of aid on spending, but to a degree that depends on local circumstances and that cannot be reliably predicted.

4. Expenditure effects of all types of grants to be large compared with the effect on local spending of federal tax reductions or other forms of federal aid to households.

Major gaps in current knowledge, in addition to a generalized inability to provide reliable quantitative estimates of any of the foregoing effects, include the lack of

1. A method of predicting how effective any particular set of grant "strings" will be in ensuring that grant money translates into additional spending for the aided programs.
2. Reliable estimates of local responses to the price incentives provided by matching grants.
3. Empirical information concerning the differential responses of different types of local jurisdictions to the various types of grants—in particular, the responses of cities of different sizes, cities compared to suburbs and nonmetropolitan jurisdictions, and cities that are in more and less favorable fiscal positions.

There are also important gaps in the available data on intergovernmental transactions. Although the amounts of aid provided by and received by various governments are reported regularly, the data do not indicate the form in which particular grants are provided or the types of constraints that accompany each component of aid. Such information could be developed, but an extensive and costly data analysis effort would be required.

Distribution of Grant Funds. The fiscal conditions of cities relative to suburbs and those of urbanized relative to less urbanized regions depend on the distribution of federal grant money among states and localities. The essential features of grant distribution schemes are the rules of eligibility for various types of aid and the specific mathematical formulas and factors used for allocating funds. The critical factors governing the distributional impact of aid vary from one category of grants to another, as follows:

The most important attribute of the mechanisms for distributing relatively unrestricted federal aid (GRS plus some broad block grants) is the specificity of the allocation criteria in the distribution formulas. Urban areas tend to do worse when broad criteria are used than when specific measures of fiscal stringency or need for services guide the allocations. In particular, the use of a population factor in a grant formula spreads the federal money widely, with little regard to fiscal needs or to the special problems of declining urban areas. The use of a per capita income variable (unadjusted for geographical cost of living differentials) skews the aid distribution away from the urban Northeast and toward rural areas in each region. In contrast, variables representing concentrations of "problem" populations, costs of services, physical or economic decline, and fiscal condition (e.g., indices of the kind proposed in Section III) would tend to benefit urban areas.

Several factors determine the urban shares of grants in the welfare and social services areas (AFDC, Medicaid, other income maintenance programs, education, and social services). One is the target group definitions. Large cities and urban regions are likely to do better when real levels of poverty, rather than nominal dollar incomes, are considered and when specific measures of dependency and need

for services, rather than more general measures, are applied. A second factor is the treatment of geographical cost differentials. In general, urban areas would receive larger shares of grant funds if differentials in the costs of providing services were taken into account in distribution formulas, as is rarely done now. A third factor is the inclusion of matching requirements, aid floors and ceilings, "hold harmless" provisions, and other constraints in fund allocation formulas. Matching provisions are likely to aid the more urbanized states and localities because such jurisdictions tend to exert greater-than-average effort in support of social programs. However, this pro-urban effect may be countered by variable matching rates designed to assist the lower-income states and by ceilings on the amounts of state and local spending that the federal government will match. "Hold harmless" provisions, which prevent cutbacks in aid from previously established levels, can work either for or against the cities—they can protect declining urban areas from the cutbacks in aid that would otherwise result from population losses, but they can also prevent shifts of funds to the cities from areas whose relative needs are no longer as urgent as they were in the past. A fourth factor, especially important in welfare programs, in the amount of discretion given to states and localities to determine levels of benefit payments and standards of eligibility. In the AFDC program, for example, it is the wide variation in grantee behavior permitted by the federal legal framework that generates the large disparities among states in levels of AFDC spending.

The treatment of urban areas under the major federal programs that provide grants for capital construction (highways, mass transit, water pollution control, urban development) depends on some of the previously mentioned factors. Matching requirements, aid floors and ceilings, and other formula constraints can affect large cities and urban states in the manner explained in the preceding paragraph. In addition, there are distributional factors that pertain specifically to grants for capital outlays. First, there is the question of jurisdictional eligibility. In such programs as CDBG, mass transit assistance, and local public works, the degree to which federal funds are concentrated in large urban areas is highly sensitive to decisions about the classes and sizes of jurisdictions that may receive grants. Second, the choice of formula grant or project grant mechanisms for allocating funds has distributional implications. Large cities may have the advantage of superior "grantsmanship" in project competitions but may be at a political disadvantage in "pork barrel" competitions for funds. Third, the specificity of criteria of need for assistance is an important determinant of allocative outcomes. The use of specific measures of fiscal distress, economic decline, or physical decay would usually favor the cities.

The methodology needed to analyze the distributional impacts of particular federal grant programs has been demonstrated in a series of studies of General Revenue Sharing (National Science Foundation, 1975) and in a study of Community Development Block Grants (Nathan, Dommel et al., 1977). The two basic elements of such analyses are (1) statistical comparisons of the shares of grant funds allocated to different types of areas or jurisdictions (including urban jurisdictions of different types), and (2) assessment of the distributional outcomes relative to various criteria of need and equity. It would be possible, given sufficient resources, to carry out similar analyses for other major grant programs and for major grant aggregates, such as grants for capital construction or human resources programs.

Locational Effects of Grant Programs. Federal grants support many of the current service, transfer payment, and construction programs that have been im-

plicated as contributing factors to suburbanization and interregional migration (the Interstate Highway System, the welfare system, etc.). These grants have long-run locational effects on urban areas in addition to their short-run effects on local budgets. In some cases, the negative locational effects may outweigh the fiscal benefits that cities realize from grants. For instance, the seemingly beneficial effects of increments in external aid for welfare and related social service programs could be cancelled out if such aid stimulates inflows of the poor into the central cities. In general, too little information is available on either the strength of the locational effects of grant-funded programs (see the *Population and Residential Location* and Economic Development reports) or on the fiscal consequences of population and business shifts (see below) to permit quantitative comparisons of the short-term and long-term effects.

Revenue Subsidies Provided through the Federal Tax System

The federal "tax expenditures" that arise from the deductibility of state and local taxes and the tax-exempt status of municipal bonds amount to almost 30 percent of the total volume of overt federal grants to the state-local sector. These tax expenditures provide revenue subsidies to state and local governments. Because state and local taxes are deductible, the full cost of paying them does not fall on citizens of the tax-levying jurisdictions. A certain fraction of the cost is, in effect, paid by the federal government. This makes it easier for state and local authorities to levy taxes than if the full cost of each tax increment were borne by the citizen-voters. The effect is much the same as that of an open-ended federal matching grant to the state-local sector. Similarly, the tax-exempt status of municipal bonds makes it easier for states and localities to issue debt. The effect is similar to that of an overt federal subsidy for the debt service component of the municipal budget.

The degree to which these federal tax expenditures translate into increased local revenue, on one hand, and into benefits for individual federal taxpayers, on the other, depends on the price elasticity of the local demand for revenue—i.e., the rate at which local revenue collections respond to the effective price reductions offered by deductibility. Reliable estimates of the effect of deductibility on local government revenue are not available. However, special studies of the effects of tax-exempt bonds have concluded that approximately 60 percent of the federal tax expenditure translates into increased revenue for states and localities.

The distribution of these federal tax expenditures is sharply skewed toward high-income taxpayers—those who pay high marginal rates and who itemize deductions. Therefore, states and localities benefit to the extent that they have high-income residents. A detailed geographical breakdown of the tax savings from deductibility and bond interest exemption is not available, but it is evident that the distribution is skewed toward the higher-income states and toward metropolitan centers within each state.

Federally Induced Changes in Local Fiscal Responsibility

The federal government can affect uban fiscal conditions substantially by altering the scope of fiscal responsibility of the local public sector. There are three methods by which this influence can be exerted: (1) direct federal assumption of

local (or state) responsibilities, (2) federal inducements to states to assume local responsibilities, and (3) federal incentives for changes in local government structure.

Direct Federal Assumption. The most-discussed proposal for a major shift of fiscal responsibility to the federal level is federalization of welfare. A full federal takeover of existing state and local welfare obligations would provide only limited direct fiscal relief to local governments, and that relief would be very unevenly distributed. Only a few large cities and urban counties contribute substantial amounts to welfare programs under the existing federal-state system. The main potential for local fiscal relief is indirect: Federal assumption of state responsibilities for welfare could benefit the cities through increased state aid for other functions or reduced state pressure on the common state-local revenue base. Because so little is known about the likely state response to this form of fiscal relief, there is no way of predicting the magnitude or timing of the benefit to the local sector.

The distributional effects of welfare reform may not be to the advantage of urban regions. Under the most likely plans, urban states would have to supplement the federal program to maintain their present high payment levels. Federalization would relieve those states of only part of the costs of their welfare programs. Meanwhile, the present low-paying states could receive large infusions of new federal money.

A possibility that has received less attention than it deserves is that federal action in the health care field could provide large-scale fiscal relief to the state-local sector. More state and local money is spent, net of federal aid, for the health and hospitals function than for welfare (especially if Medicaid is counted as a health program). A substantial portion of this spending would become unnecessary under comprehensive national health insurance. Both the amount of fiscal relief and the interstate distribution of the benefits would depend on such specific features of the plan as the scope of coverage, the level of benefit payments, and the provisions (if any) for state and local supplementation. The fraction of the fiscal relief to be enjoyed by local governments, and urban local governments, in particular, would also depend on fiscal responses by the states. Much of the initial fiscal relief, especially that resulting from elimination of the nonfederal share of Medicaid, would accrue to the states initially and would only indirectly assist local governments in urban areas.

Federally Induced State Assumption. There are a number of methods, mainly involving the manipulation of grant provisions, whereby the federal government could induce state governments to assume financial responsibilities that are now borne by cities and other local jurisdictions. The most important area in which this type of federal intervention has been discussed is elementary and secondary education. There is a potential federal role in reinforcing and extending to more states the recent trend toward state assumption of a larger share of nonfederal spending for public schools. Even a relatively small percentage shift in revenue-raising responsibilities from the local to the state level could provide large-scale local fiscal relief because schooling accounts for so large a fraction of total local outlays. In most states, the cities would benefit only indirectly because schooling is provided by independent local districts. However, research indicates that the benefits would spill over from school districts to cities and to other categories of local governments.

If welfare is not federalized, federal inducements for state assumption of local welfare responsibilities could becomes a relevant alternative. However, the benefits of this form of local fiscal relief would be limited and concentrated in a few large jurisdictions in a few states.

Federal Incentives for Changes in Government Structure. The federal government could alter fiscal conditions in urban areas by providing incentives to states and localities for the following types of structural change: (1) shifts of responsibility from cities to overlying counties (where the latter span larger areas), (2) formation of general-purpose or special-purpose units of metropolitan government, and (3) development of systems of metropolitan tax-base sharing. The federal government has given some encouragement in the past to efforts to provide selected services on a metropolitan-wide basis, but considerably stronger incentives could be provided by incorporating appropriate incentives into grant-in-aid programs.

Federally Imposed Service Obligations and Costs

There are areas in which federal legislation or regulatory activity has imposed expenditure obligations upon local (and state) governments, and in which federal aid has compensated only in part, or sometimes not at all, for the increased local costs. One such field is environmental protection. To meet federal air and water quality standards, local governments have had to make major investments in facilities and to take on new operating responsibilities. Federal aid programs typically pay for some of the capital costs but none of the operating costs, leaving the localities with new, permanent expenditure obligations.

Costs have also been imposed on local governments by federal efforts to enforce the civil rights of certain population groups. The largest financial impact thus far has probably resulted from federal efforts on behalf of the handicapped, which have imposed new costs on local public school districts and general-purpose jurisdictions. Federal policies aimed at desegregating schools and preventing discrimination in housing and employment have also imposed costs on localities.

Although much has been said about the burdens that these federal mandates impose on local government, no one has added up the cost of satisfying federal service standards. The available evidence is fragmentary and anecdotal and gives no real idea of the fiscal implications of this form of federal intervention.

Thus far, the federal government has done little to affect service costs by exerting influence over the prices that local governments must pay for labor and other resources. The federal role in setting wage and hour standards for public employees has been limited by the Supreme Court decision in *National League of Cities* v. *Usery*. For the time being, that decision also halted the movement in Congress toward development of a federal legal framework for collective bargaining in the state-local sector. If some form of national collective bargaining law were constitutionally acceptable, the terms of the law could have a major, long-run impact on local government costs.

PRINCIPAL FINDINGS ABOUT POLICIES THAT AFFECT LOCAL FINANCES INDIRECTLY VIA THE PRIVATE SECTOR

A large number of federal policies affect the business and residential compo-

nents of the urban tax base and the levels of household and business demand for public services. Most of these policies operate indirectly by influencing the size and makeup of the local population, the stock of housing in the community, or the level and composition of economic activity in the private business sector. A two-stage analytical process is needed to assess the effects of these policies: The first step is to determine how each federal policy influences urban demography and housing or private sector economy activity; the second is to translate the changes in those variables into increments in local tax bases and service needs.

Policies that Affect the Household Tax Base

Federal actions can affect the per capita nonbusiness tax base either by altering the economic circumstances of the existing urban population or by stimulating selective migration into or out of urban areas. The policies that affect the existing urban population include transfer payment programs (especially housing assistance and subsidy programs), federal income tax policies, job creation programs, and general macroeconomic policy. The policies that may change the composition of the urban population are those that create locational incentives. Examples include federal highway aid and other transportation programs; tax and credit subsidies for housing; programs of support for local infrastructure investment; the federal welfare system (insofar as it generates geographical disparities in benefit levels); and enforcement of housing and school desegregation laws, insofar as it stimulates white or middle-class flight from the cities. The economic characteristics of households that are most closely linked to the size of the nonbusiness tax base are household income and housing consumption, although family size and structure also play a role.

The data have not been assembled that would permit translation of changes in household characteristics into "tax base equivalents." Important elements of the data exist and could be brought together. The results of housing demand studies could be used to show the levels of residential property value that are associated with different combinations of household characteristics. The results of household consumption studies could be used to estimate the taxable retail sales generated by households of different types. It would be necessary to deal with the geographical differences in supply conditions that lead to significant interarea differentials in the value of housing occupied by families of given characteristics. The main obstacle to development of information on the relationship between population composition and tax base is not methodology but the sheer magnitude of the data analysis effort that would be required.

Policies that Affect the Service Demand of Households

The level of household demand for local public services depends on the size and composition of the local population, and therefore is subject to influence by the same policies that influence the nonbusiness tax base. The relationships between household characteristics and service demand are more complicated than the relationships between household characteristics and the tax base because more demographic variables play significant roles as demand determinants. Among the variables that have been linked to service demand are the pupil-population ratio, the incidence of poverty, the age structure of the population, the form of housing

tenure, and various measures of dependency. The findings that have the strongest empirical support are those about the pupil-population ratio. It has been difficult to determine how service demand is related to poverty and dependency because both variables are correlated with measures of local fiscal capacity. Considerable work will be needed to clarify the relationships between specific population characteristics and demand for particular public services.

In addition to the strictly demographic variables, such physical variables as population density, age of the housing stock, and climate have been associated with expenditure variations. It is not clear whether these are demand factors or proxies for service cost.

Net Fiscal Effects of Demographic Change

Most federal actions that alter the composition or the economic circumstances of the urban population will affect both the local revenue base and the level of service demand. The two effects may be either offsetting or mutually reinforcing. We do not have sufficiently detailed information on the relationships between household characteristics and either the tax base or the level of service demand to actually compute the net fiscal dividend or deficit that, conceptually, is associated with each household. To perform such computations it would be necessary to take account of a varity of complexities, such as interjurisdictional variations in the mixes of public services and revenue sources, interarea cost differences, and relationships between population characteristics and the availability of federal and state aid.

Information on net fiscal effects could be relevant to policy debates over such questions as welfare reform, school desegregation, and the location of public housing. These and other federal policies that alter the residential attractiveness of communities to different groups are likely to affect both the revenue and expenditure sides of local budgets, but in ways that are only poorly understood. Additional research could yield improved estimates of net impact but the research opportunities are limited by the lack of detailed demographic data for years other than those of the decennial censuses.

Policies that Affect the Business Tax Base and Business Demand for Local Services

There is evidence that locational patterns of business activity are influenced by federal policies in such areas as highway and rail transportation, provision of local public infrastructure, energy and environmental protection, regulation of the labor market, manpower training, and tax treatment of investments. The spatial patterns of business and residential activity are intertwined. Only limited progress has been made toward disentangling these effects and identifying the contributions of specific federal policies to suburbanization and interregional shifts of industry.

Little attention has been given to the question of how much local tax base is generated by given volumes of output, investment, or employment. Although there has been research on individual cities, there have been no broad, generalizable studies. Some of the necessary information could be assembled from the Censuses of Manufacturers and from input-output studies. The data on investment and capital stocks are inadequate and data on nonmanufacturing industry are incomplete

Like households, business firms generate demand for local public services. Therefore, the question of net fiscal impact is just as important to raise in connection with changes in business activity as it is in connection with changes in urban demography. Very little information seems to have been assembled on this subject.

Policies that Affect Public Service Costs

The main influence of federal policies on public service costs operates indirectly via the private sector. Federal macroeconomic policies determine the economy-wide rate of inflation, to which the local public sector is especially sensitive because of the difficulty that jurisdictions face in adjusting tax rates rapidly enough to keep up with rising prices. The federal government affects private sector wage rates through a number of policies, some of which contribute to interregional wage differentials. Important among these are the federal policies governing collective bargaining. It is well established in the literature that private sector wage patterns are reflected in the public sector and that the strength of public sector unions reflects the strength of private sector unions in the same areas.

The federal government also influences the costs of certain nonlabor inputs purchased by local governments, notably energy and contract construction but it is not clear that this influence has contributed to the cost differentials between more and less urbanized areas.

PRIORITY AREAS IN URBAN FISCAL RESEARCH

The following suggestions about research priorities derive from this study's findings about gaps in current knowledge of the effects of federal policy on urban finance. The suggestions are grouped under several headings, which correspond to issues on which more information is needed to permit estimation of policy impacts. Needs for both analytical work and data collection are mentioned under each heading.

Measurement and Projection of Fiscal Conditions

Section III explained some of the shortcomings of the fiscal indicators that have been used in previous analyses of urban fiscal problems and suggested an alternative, more comprehensive approach to quantifying fiscal conditions. The following research efforts would help to implement this approach and would contribute to our ability to compare fiscal conditions in different jurisdictions, to diagnose urban problems, and to examine the fiscal prospects of urban areas in the future.

Construction of Indices of Fiscal Conditions. A particular approach to constructing composite indices of the balance between local financial resources and local service needs is outlined in Section III and in the appendix. Construction of even a crude version of such an index for a stratum of major cities could be useful for classifying cities according to the severity of their problems, for identifying cities likely to experience problems in the future, and, perhaps, for targeting federal assistance under certain kinds of urban aid strategies. Preliminary versions of these indices could be constructed from existing Census Bureau data on population characteristics and government finances and rough cost and wage indices. These

data would permit cross-sectional comparisons of cities at decennial census periods (using, for example, 1970 population data in combination with 1972 Census of Government data) and construction of incremental opportunity indices for the intercensal period. It would also be possible to carry out rough analyses of post-1970 developments in selected cities and metropolitan areas, using population estimates and the annual Census Bureau reports on government finances. Construction of more refined indices of fiscal conditions would require development of the component indices described below.

Development of Service Need, Cost, and Responsibility Measures. Some progess in developing better measures of need, cost, and responsibility could be made by applying to existing data approaches that have already been formulated and pilot-tested. Measures of relative needs for services could be developed according to the methods outlined in Auten (1974) and Barro et al. (1975), using the 1970 and 1972 Census Bureau data mentioned earlier. Improved cost indices could be constructed from BLS data by applying methods that have recently been developed in school finance studies (Chambers, 1976; Grubb, 1975; Brazer, 1975) but not yet applied to general-purpose governments. Preliminary indices of fiscal responsibility could be constructed initially according to the standard cost method outlined in Section III. More refined responsibility measures could be developed by regression methods that allow for systematic variations in assignment of responsibility by size and type of jurisdiction. The possibilities of constructing consistent indices for cross-sections of cities are effectively limited to the decennial census of Population years. However, it would probably be feasible to construct longitudinal indices for selected cities by using local budgetary and demographic data.

Fiscal Projections and Simulations. Once a general index of urban fiscal condition has been constructed, it could be used as the base for simulations and projections of future fiscal developments. Alternative assumptions about changes in each major determinant of local fiscal opportunities (the tax base, external aid, service demand, service costs, and local responsibilities) can be derived from diverse sources, and the implications of alternative combinations of assumptions can be studied. The results might be useful (1) for identifying the economic and demographic developments that will be most critical to cities—i.e., those to which the index of fiscal conditions is most sensitive, (2) for estimating the potential impact of federal policies that influence different elements of local fiscal opportunity schedules, (3) for identifying the underlying factors that differentiate well-off from disadvantaged and growing from declining cities, and (4) as part of an "early warning" system for identifying cities that are likely to face fiscal problems in the future.

Research on the Intergovernmental Grant System

Despite all the research that has been done on grants-in-aid, there are major gaps in our understanding of the structure and operation of the federal-state-local intergovernmental grant system. The following research suggestions are aimed at filling the most critical gaps in our ability to assess federal impacts on cities.

Analysis of the Composition of Intergovernmental Aid to Local Governments. An obstacle to analyzing both the distribution of aid among localities and the local response to aid is that data have not been assembled on the amounts of aid that flow to particular types of jurisdictions under particular programs and on the forms in which grants are provided. There are no major conceptual obstacles

to filling this gap, but a large-scale data collection and analysis effort would be required. A partial prototype for the effort has been provided by an ACIR study (1977) that examines the composition of federal grant programs at the national level. However, an analysis of the effects of aid on cities would have to consider state as well as federal grants, and would have to be disaggregated by region, state, and type of jurisdiction. The results of such an effort would contribute to the other studies of the grant system outlined below.

Cross-Program Analysis of the Distribution of Federal Aid. Most studies of grant distribution have either looked at federal aid in the aggregate or focused on particular large programs, such as GRS, CDBG, and AFDC. There have been no studies of the distributional effects of broad categories of grant programs, such as grants for capital construction, or of the combined impacts of the aid distribution formulas used in different grant programs. Such studies would be useful for (1) determining how different states, regions, and metropolitan areas and the central city and suburban portions of metropolitan areas are treated under the federal grant system; (2) analyzing the effects of projected growth in appropriations for different grant programs on distributional outcomes; and (3) determining the consequences of proposed changes in federal grant programs, including changes specifically designed to benefit urban areas. Methods that have been used to study the GRS, CDBG, and other specific programs (as in, e.g., National Science Foundation, 1975; Nathan, Manvel, and Calkins, 1975; Nathan et al., 1977) would be directly transferable to this broader inquiry.

Research on Fiscal Responses of State Governments. A major gap in our ability to analyze the urban impact of the intergovernmental grant system is that there have been no satisfactory empirical studies of the determinants of state aid to local governments and of state fiscal responses to federal grants. Several lessons learned from the expenditure determinants literature could be exploited in a new attempt to model state fiscal behavior. They are, first, that time-series or pooled, multiyear cross-section data on state spending should be used; second, that interstate variations in the state-local division of responsibilities must be taken into account explicitly; third, that models must include price variables and reflect the form of federal aid to the states; and fourth, that allowance must be made for the simultaneous determination of aid and expenditures. Existing data on state finance and existing modeling methodology, if properly combined, should be sufficient to advance the state of the art substantially in this area.

Further Research on Local Responses to Different Forms of Aid. Although there has been much research on this subject, we still do not have reliable, detailed estimates of local responses to grants. In particular, information is lacking on responses to matching grants and different types of categorical aid and on response differentials among different types of local governments. Improved methods of dealing with different forms of aid have been demonstrated (e.g., in Gramlich and Galper, 1973; Inman, 1971; and a number of school finance studies), but these newer methods have not yet been applied to large-sample studies of individual, general-purpose local governments. The analysis of the composition of intergovernmental aid to local governments, mentioned above, would be a logical precursor to the modeling effort suggested here. Some of the methods mentioned in the preceding paragraph would also be applicable. In addition, special attention would have to be given to the question of differences in behavior among different categories of

local governments and to interactions among overlapping jurisdictions serving the same population. An appropriate data base might be built from the annual Census Bureau reports on finances of large cities or, alternatively, data on local governments aggregated up to the county level might be used. The methodological base is now sufficiently developed that it should be possible to produce reliable estimates of responses to grants by different types of local governments and to estimate the fiscal impacts of major individual grant programs.

Research on Relationships between the Public and Private Sectors

A major obstacle to analyzing the effects of federal policies that affect local finance via the private sector is that we do not have adequate information on the relationships between changes in the private economy and changes in local tax bases and service demands. Even if the locational effects of federal policies were correctly anticipated, it would be difficult to translate that knowledge into estimates of fiscal consequences. (The lack of adequate information on the locational effects themselves is a much bigger obstacle to urban fiscal analysis but the research needed in that area is discussed in the *Population and Residential Location* and *Economic Development* reports.) The research efforts suggested below are aimed at filling this gap in our understanding of intersectoral linkages.

Research on the Relationship between Tax Base and Economic Activity. In principle, it should be possible to translate information on the level and composition of economic activity in an area and on the composition of the local population into estimates of the taxable resources available to local governments. However, the data analysis has been done that would make this translation feasible, except for studies of individual local jurisdictions (e.g., the 1974 Bahl, Campbell, and Greytack study of New York City). For such an analysis to be feasible for a cross-section of jurisdictions, it would have to be done at a relatively gross statistical level. The objective would be to relate such economic variables as the level of output (or value added), capital investment, and employment by major industrial sector to such fiscal variables as per capita taxable property, sales, and payrolls. Many methodological problems would have to be solved to develop such relationships. For example, the effect of supply factors on taxable property values would have to be represented in the model. A relatively large, long-term research effort would be required. Fortunately, much of the relevant data can be obtained from the Census of Manufactures and other economic censuses.

Research on the Relationship between Demography and Service Demands. There have been a few attempts to determine the effects of population composition on demands for public services (Auten, 1974; Barro et al., 1975), but they have been limited in terms of both data base and methodology. Consequently, insufficient information is available to estimate the effects of changes in the make-up of the urban population on the demands for particular local services. To estimate these effects, it will probably be necessary to develop an explicit supply-demand model of local expenditure determination (along the line of Ohls and Wales, 1972), and to use time-series or pooled cross-sectional data on population characteristics and the functional composition of local expenditures. Such models, used in conjunction with demographic projections for cities or metropolitan areas, would be useful for determining how demographic developments will affect local expenditure demands in the future.

Analysis of the Net Fiscal Effects of Demographic and Economic Changes. To assess the fiscal consequences of federal policies that affect either the business sector or the residential sector of the urban economy, information is needed on both the revenue and expenditure implications. In the case of a federal policy that affects urban demography, the net effect depends on the increments in the local residential tax base and the increments in consumption of public services attributable to the population shifts. In the case of an action that alters the composition of business activity in urban areas, the net effect depends on the increment in the business tax base and the increment in public services consumed by businesses. A combination of the research approaches mentioned above would be required to analyze all these effects. In addition, to deal with the effects of demographic change, information would have to be assembled on the housing consumption and housing stock magnitudes associated with households of given characteristics, and deal with the business sector, it would be necessary to assemble information on the local services attributable to industrial and commercial activity. New methodological developments would be needed in several areas. Findings from such research would fill a major gap in our ability to make and assess urban policy—namely, our current inability to tell whether a given change in residential or business location patterns is fiscally desirable because we are unable to add up the effects on the revenue and expenditure sides of the ledger.

APPENDIX

This appendix presents mathematical statements of the fiscal opportunity schedules and the indices of fiscal condition that were introduced in Section III. The versions provided here are more complete than those described and represented graphically in the text. The following additional factors have been taken into account: (1) the distinction between lump-sum and matching grants, (2) spillovers of both revenues and services, and (3) the revenue subsidies provided by federal (and state) deductibility of local taxes. These are still highly aggregative formulations, however. The various schedules and indices are useful only for considering the overall conditions of cities or urban areas, and not for analyzing decisions about the composition of local spending or the mix of local revenue sources. Note also that these mathematical devices are intended to be useful only for comparing the short-run fiscal options available to a jurisdiction. They do not take account of dynamic factors in local fiscal affairs, such as the adjustment of the tax base to changes in levels of spending and taxes.

DEFINITIONS OF VARIABLES

Because the version of the fiscal opportunity schedule given here is more complicated than the version given in Section III, the following abbreviated notation is used:

E = per capita current expenditure of the local jurisdiction,

E_L = per capita current expenditure for services received by residents of the jurisdiction,

R_O = per capita revenue from own sources,

R_G = per capita revenue from intergovernmental aid,

B_L = per capita revenue base owned by residents of the jurisdiction (i.e., excluding any taxable resources owned by nonresidents),

β_R = the rate of revenue spillover (i.e., the fraction of all locally imposed levies paid by nonresidents),

r = the nominal rate of tax effort (i.e., the ratio of locally imposed levies on residents to the revenue base, B_L),

r_e = the effective rate of tax effort, taking account of revenue subsidies provided by means of tax expenditures,

t = the rate at which local tax payments are offset by reduced federal and state income taxes for an average resident of the jurisdiction,

G = per capita lump-sum grants and fully utilized closed-ended matching grants from federal and state governments,

a = the rate at which federal and state aid provided under open-ended matching grants matches local spending for the aided programs,

h = the fraction of local spending that earns federal and state aid under open-ended matching grants,

β_E = the rate of expenditure spillover (i.e., the fraction of all locally provided services consumed by nonresidents),

C = index of relative costs of services in the jurisdiction,

N = index of relative service needs (based on the composition of the population and other factors),

R = index of the scope of service responsibilities of the jurisdiction.

THE LOCAL BUDGET CONSTRAINT

Assuming that no borrowing is permitted to finance current operations, the budget constraint facing the local jurisdiction is that per capita spending must equal the sum of per capita revenue from own sources and per capita revenue from intergovernmental aid, i.e.,

$$E = R_O + R_G .$$

Per capita revenue from own sources consists of the revenue derived from taxing local residents plus the revenue derived from taxes that are "exported" to nonresidents. The first component, by definition, is equal to the product of the rate of tax effort and the per capita resident-owned portion of the jurisdiction's revenue base, or rB_L. That quantity is equal to the fraction $1-\beta_R$ of all revenue from own sources (the remaining fraction, β_R, is exported). Therefore, per capita revenue from own sources is given by

$$R_O = rB_L/1 - \beta_R .$$

However, because local taxes are deductible from federal and state income taxes, the nominal rate of tax effort, r, is not the effective rate paid by local residents. The relationship between the former and the latter is

$$r_e = (1 - t)r .$$

Therefore, the expression for revenue from own sources may be rewritten as

$$R_O = r_e [(1 - t)/(1 - \beta_R)] B_L .$$

The per capita amount of intergovernmental aid received by the jurisdiction is the sum of per capita lump-sum aid and per capita aid received under open-ended matching grants, i.e.,

$$R_G = G + ahE.$$

Total expenditure, therefore, is given by

$$E = R_O .$$

Combining the two terms in E, this becomes

$$E = 1 - ah .$$

The expenditure variable E represents per capita spending for all services provided by the jurisdiction, whether consumed by residents or by nonresidents. To examine the relationship between the level of services provided to local residents and the size of the tax burden imposed upon them, it is necessary to adjust for the spillover of locally produced services to nonresidents. The relationship between total per capita spending and spending net of spillovers is

$$E_L = (1 - \beta_E)E .$$

Therefore, the budget constrant may be rewritten in terms of E_L as

$$E_L = 1 - ah .$$

Note that the revenue and expenditure spillover factors do not enter into the budget constraint equation symmetrically. The former affects only the own-source component of revenue, while the latter affects all local spending, whether financed by own revenue or by intergovernmental aid.

THE ABSOLUTE FISCAL OPPORTUNITY SCHEDULE

As was explained in Section III, the level of per capita local spending, even when adjusted for expenditure spillovers, is not an adequate measure of the degree to which the local government is satisfying the service demands of its residents. Three additional factors need to be considered in making interjurisdictional and intertemporal comparisons. These are (1) the cost of services at each place and time, (2) the composition of the population to be served and other "objective" need factors, and (3) the scope of service responsibilities of each local jurisdiction. These factors can be taken into account by deflating the level of per capita spending on behalf of local residents, E_L, by appropriate cost, need, and responsibility indices. The problems of constructing such indices have been discussed in Section III.

The interpretation of the deflated expenditure amounts is as follows: Per capita spending deflated by the cost-of-services index, E_L/C, measures the real, or constant dollar, level of per capita outlay in a given jurisdiction at a given time. It provides a measure of the physical resources available to serve each resident of the jurisdiction. The same quantity deflated by the need index, N, in other words, the magnitude $E_L/(CN)$, may be interpreted as a measure of real resources per unit of need. The main effect of deflating by N is to normalize for variations in the proportions of high and low consumers of public services in the local population. The effect of introducing the third deflator, i.e., computing $E_L/(CNR)$, is to relate real spending per unit of need to the range of functional responsibilities for which each jurisdiction is responsible. For example, if one jurisdiction is responsible for twice as broad a range of functions as another, then the same level of real per capita spending will result in only half as great a level of "need satisfaction" in the jurisdiction with the

broader functional role. The quantity $E_L/(CNR)$ provides a measure of the degree to which a jurisdiction is meeting the public service needs of its citizens within the service areas for which it is responsible.

The absolute fiscal opportunity schedule of a jurisdiction (corresponding to the relationship depicted in Fig. 3.2, Section III) is a relationship between $E_L/(CNR)$ and r_e. It is given by

$$E_L/CNR\ .$$

The intercept of the schedule is

$$I = \ldots.$$

The slope of the schedule with respect to r_E is

$$S = \ldots.$$

The level of the intercept is an increasing function of per capita lump-sum aid. The steepness of the slope is an increasing function of the local revenue base, the rate of revenue spillover, and the value of deductibility provisions to local residents (the last of which is an increasing function of income). Both the steepness of the slope and the level of the intercept are decreasing functions of the indices C, N, and R and the rate of service spillover and increasing functions of the matching rate for open-ended grants and the share of local spending that is eligible for matching aid.

THE INCREMENTAL FISCAL OPPORTUNITY SCHEDULE

The incremental fiscal opportunity schedule is a relationship between the year-to-year change in the rate of fiscal effort exerted by a jurisdiction and the year-to-year change in the level of its expenditures relative to its expenditure needs. The incremental relationship can be derived directly from the foregoing mathematical statement of the absolute opportunity schedule.

The absolute schedule may be written in the highly abbreviated form

$$E\#^* = I + Sr_e\ ,$$

where $E\#^* = E_L/(CNR)$ and I and S are the intercept and slope expressions given above. The increment in E^* between years labeled "1" and "2" is, by definition,

$$\Delta E\#^* = \ldots.$$

The slope of this incremental schedule is S_2—i.e., precisely the same as the slope of the absolute opportunity schedule in year 2. The intercept of the incremental schedule is $\Delta I + r_{e1}\Delta S$. It is the latter magnitude that indicates how the fiscal condition of the locality has changed from one year to the next. If $\Delta I + r_{e1}\Delta S = 0$, the jurisdiction can maintain its level of services relative to needs, $E_L/(CNR)$, without changing the effective rate of fiscal effort, r_e. If $\Delta I + r_{e1}\Delta S < 0$, maintenance of the year 1 rate of effort will result in a fall in $E_L/(CNR)$. The jurisdiction must either increase its effort rate or permit its services to decline. If $\Delta I + r_{e1}\Delta S > 0$, the fiscal opportunities of the jurisdiction have improved. The locality can hold

its effort rate constant while expanding its public services, reduce its effort while holding service levels constant, or choose some combination of tax reduction and service improvement policies.

Holding constant the spillover factors, β_E and β_R, and the tax deductibility factor, t, it can be seen that whether $\Delta I + r_{e1}\Delta S$ is positive or negative depends on how rapidly the revenue base and grant factors, G, B_L, a, and h, grow relative to the expenditure need indices, C, N, and R. The year 1 tax effort factor, r_{e1}, can be considered as a weighting factor that determines the relative importance of increments in external aid and in the local revenue base in maintaining the jurisdiction's fiscal position.

INDICES OF FISCAL CONDITION

In Section III, several different indices were suggested for comparing the fiscal opportunities of different cities and for measuring the rate of improvement or deterioration of a city's fiscal opportunities over time. The methods of calculating these indices are easy to describe, given the foregoing development of the absolute and incremental fiscal opportunity schedules.

Indices for Comparing Opportunities of Cities at a Given Point in Time

The following two indices were proposed in Section III as devices for comparing the fiscal opportunities available to each of a number of cities in a given fiscal year:

Index 1: The relative level of $E_L/(CNR)$ that a city can support by exerting the average level of fiscal effort exerted by all cities in the relevant class. The index values are calculated directly from the defining equation for the absolute fiscal opportunity schedule by setting $r_e = r_{e,avg}$, the all-city average value of the effective rate of effort. After values of $E_L/(CNR)$ are computed for each of the cities to be compared, the results can be transformed into an index (base = 1.00) by computing the ratio of the $E_L/(CNR)$ value obtained for each city to the all-city average.

Index 2: The relative rate of effort required to support the average level of the expenditure-to-needs ratio supported by all cities in the relevant class. The required rate of effort for each city is computed by setting $E_L/(CNR)$ equal to the all-city average of that magnitude and then determining the corresponding value of r_e for each city. The computed rates of fiscal effort may then be converted to an index by computing their ratios to the average rate of effort for the whole set of cities. Small values of this index indicate favorable fiscal positions—i.e., the smaller the computed value of r_e, the less effort needs to be exerted by the local jurisdiction to support an average level of public services.

Indices for Comparing Changes in Fiscal Opportunities over Time

The following two indices are computed from the defining equation for the incremental fiscal opportunity schedule.

Index 1: The percentage rate by which $E_L/(CNR)$ increases over a specified time

interval when the rate of revenue effort is held constant. To compute this value, Δr_e is set equal to zero and $\Delta[E_L/(CNR)]$ is computed from the equation

$$\Delta E_L/CNR \ .$$

using the equations for I and S given earlier. The results converted into percentage changes by dividing each one by the corresponding year 1 value of $E_L/(CNR)$ and multiplying by 100. The index values can be positive or negative. A positive value indicates that the expenditure-to-needs ratio would have increased over the period if revenue effort had been held constant; a negative value indicates that the ratio would have decreased.

Index 2: The percentage rate by which r_e would have had to increase or decrease over a specified period in order to maintain $E_L/(CNR)$ at its initial level. To compute this value, $\Delta[E_L/(CNR)]$ is set equal to 0 in the incremental opportunity equation, and Δr_e is computed from the relationship

$$\Delta r_e = \ldots .$$

The results are converted into percentage changes by dividing each one by the base-year value of r_e and multiplying by 100. A negative value of this index indicates an improvement in fiscal condition—i.e., it would have been possible for the city to maintain its level of services relative to needs while reducing its revenue effort.

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